STORMWATER POLLUTION CONTROL PLAN

SCHNITZER STEEL PRODUCTS CO.
International Terminals
12005 N Burgard Road
Portland, Oregon 97203

October 1999

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STORMWATER POLLUTION CONTROL PLAN

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1.0 PLAN OVERVIEW

1.1 Introduction

This Stormwater Pollution Control (SWPC) Plan covers the operations of the Schnitzer Steel Products Co. (SSP) scrap metal recycling facility located at the International Terminals (IT) property in the Rivergate industrial area on the east bank of the Willamette River in north Portland, Oregon. This SWPC Plan was prepared in accordance with the requirements of the Oregon Department of Environmental Quality (DEQ) General Permit 1200-Z issued under the National Pollutant Discharge Elimination System (NPDES).

The U.S. Environmental Protection Agency's (EPA's) model permit for the scrap processing and recycling industry (U.S. EPA, 1993), and the DEQ's *Guidance Document for Preparation of the NPDES Storm Water Pollution Control Plan* (DEQ, 1997) were used as guidance for the preparation of this SWPC Plan.

This SWPC Plan describes the SSP-IT facility and its operations; identifies potential sources of stormwater pollution at the facility; and describes appropriate stormwater pollution control measures to reduce the potential for discharge of pollutants in stormwater run-off. In addition, the requirement for periodic review of this Plan is established.

1.2 General Facility Information

Following is a brief summary of general facility information related to the SSP-IT site:

Name of Facility:	Schnitzer Steel Products Co.
Owner:	Schnitzer Investment Corp.
Operator:	Schnitzer Steel Products Co.

Facility Address:	12005 N Burgard Road Portland, Oregon 97203
Mailing Address:	P.O. Box 10047 Portland, Oregon 97296-0047
Facility Contacts:	
Primary:	Terry Glucoft, General Manager (503) 286-6916 (503) 301-8360 (pager)
Alternate:	Jim Jakubiak, Environmental Administrator (503) 286-6976 (503) 527-2330 (pager)
Alternate:	Mathew Cusma, Environmental Administrator (503) 286-6944 (503) 903-7327 (pager)
Number of Employees:	75 (approximate)
Operations Description:	Ferrous scrap metal recovery and recycling. Scrap metals are delivered to the site from private and commercial parties by truck, rail, or barge, and are graded and sorted on-site. Scrap metals may be resized by shredding, shearing, or torching, and are ultimately shipped off site by truck, rail, barge, or ship for use as feed stock in domestic or foreign steel mills.
Standard Industrial Classification (SIC) Code:	5093, Scrap and Waste Materials
Site Drainage:	The site is flat and has been graded to promote desired drainage patterns. The site is predominantly paved (asphalt) and stormwater drains by sheet flow to catch basins. Catch basins drain through subsurface piping to oil/water separators, which discharge either to an onsite process water management system, or offsite to the Willamette River.
Stormwater Outfalls:	20 outfalls discharging to the Willamette River.

1.3 Plan Objectives

In November 1990, the U.S. EPA adopted regulations (40 CFR Parts 122, 123, and 124) to control stormwater discharges from industrial facilities and certain municipalities through the NPDES permit program. The goal of the NPDES permit program is to improve the quality of surface waters by reducing the quantity of pollutants that are potentially contained in stormwater run-off. In the State of Oregon, the Oregon DEQ has been granted the authority to administer the NPDES program.

The NPDES program specifies certain SIC categories [40 CFR §122.26(b)(14)(i-ix, xi)] for which discharge permits are required. Any facility falling within such a category, and from which stormwater leaves the site and enters surface waters through a "point source," must apply for a stormwater discharge permit under the NPDES system. In addition, facilities subject to NPDES permitting requirements, which include the SSP-IT facility, are required under the permit conditions to prepare and implement a Stormwater Pollution Control Plan. The SSP-IT facility is currently permitted to discharge stormwater to waters of the State under General Permit 1200-Z (included as Appendix A).

The objectives of this SWPC Plan are: 1) to identify potential sources of pollution at the facility which could adversely affect the quality of the stormwater discharges from the site, and 2) to describe appropriate pollution control measures and best management practices (BMPs) that will address the identified potential pollution sources and stormwater quality requirements for this facility. Proposed control measures include active potential source isolation and abatement, as well as support programs such as a periodic facility inspection program and detailed recordkeeping and reporting procedures. These measures will assist the compliance staff in maintaining compliance with the terms and conditions of General Permit 1200-Z.

1.4 SWPC Plan Organization

The SWPC Plan is organized into sections as follows:

Section 2.0: Stormwater Pollution Prevention Team

Personnel responsible for implementation of the SWPC Plan are identified and their specific responsibilities related to stormwater management are detailed.

Section 3.0: Facility Description

A detailed description of the site layout, facility operations, and potential sources of stormwater pollution is presented. A facility location map, a site plan showing drainage and other relevant features, an inventory of significant materials

potentially exposed to stormwater, and a discussion of past spills are also included.

Section 4.0: Stormwater Pollution Controls

Stormwater management controls, and spill prevention and response procedures are detailed. Preventive maintenance measures, the employee training program, and periodic SWPC Plan review and amendment requirements are set forth.

Section 5.0: Stormwater Monitoring Program

The stormwater monitoring program, including sampling frequencies and protocols, analytical parameters, and recordkeeping and reporting requirements are presented.

Section 6.0: Implementation Schedule

The SWPC Plan implementation schedule, and the discharge permit compliance schedule are detailed.

Section 7.0: Additional Permit Requirements

Oregon Administrative Rules (OAR) specific to the Willamette Basin are addressed.

Section 8.0: Plan Certification

Certifications of the SWPC Plan by the owner/operator and by a Professional Engineer registered in the State of Oregon are presented.

2.0 STORMWATER POLLUTION PREVENTION TEAM

Stormwater pollution prevention depends on the awareness and cooperation of all SSP employees. However, the Stormwater Pollution Prevention Team is primarily responsible for developing, implementing, maintaining and revising this SWPC Plan; ensuring facility employees receive appropriate training in BMPs related to stormwater; conducting periodic site inspections to identify areas needing improvement; and ensuring that any identified deficiencies are corrected in a timely manner.

Team members and their specific duties and responsibilities related to stormwater management are detailed below. All members of the team are familiar with the management and operations of the SSP-IT facility.

Terry Glucoft, General Manager: Responsible for supervision and direction of all stormwater pollution prevention activities at the facility, including compliance with the General Permit and the SWPC Plan. Releases annual stormwater quality reports to the DEQ (July 15th each year), and approves necessary budget items

and schedules for implementation of pollution control measures as required by the SWPC Plan.

Jim Jakubiak, Environmental Administrator: Responsible for overseeing day-to-day SWPC Plan implementation. Performs necessary recordkeeping and reporting activities. Assists with employee training related to stormwater pollution prevention. Conducts periodic site inspections and SWPC Plan effectiveness evaluations.

Mathew Cusma, Environmental Administrator: Responsible for overseeing day-to-day SWPC Plan implementation. Performs necessary recordkeeping and reporting activities. Assists with employee training related to stormwater pollution prevention. Conducts periodic site inspections and SWPC Plan effectiveness evaluations.

3.0 FACILITY DESCRIPTION

3.1 Facility Location and Description

The SSP-IT facility occupies approximately 70 acres of upland in the Rivergate industrial area between the Willamette River and North Burgard Road in Portland, Oregon. An additional approximately 50 acres of industrial land contiguous to the SSP-IT facility is owned by Schnitzer Investment Corp. (SIC), but is leased to other tenants, and is therefore not covered under this SWPC Plan. Access to the facility is provided primarily by an entrance roadway off of North Burgard Road near the intersection of North Sever Road. The site can also be accessed using North Sever Road and Time-Oil Road, although these two entrances primarily serve neighboring facilities. A facility location map is provided as Figure 1.

The site is fenced on three sides, with the fourth side bounded by the river. The active portion of the property is bounded as follows:

- On the north, by a marine vessel berthing slip, Jefferson Smurfit Corporation, and Time Oil Co.
- On the east, by Northwest Pipe & Casing Co., Ryerson Steel, Boydstun Metal Works, and Portland Sandblast Co. (tenants of SIC), and by North Burgard Road.
- On the south, by Terminal 4, a shipping terminal owned and operated by the Port of Portland.
- On the west, by the Willamette River.

Properties on the north and east sides of the site are not addressed in this SWPC Plan, except to the extent that their discharge may affect discharges from the outfalls associated with SSP-IT. Two outfalls (#1, and #18) receive stormwater flows from facilities east of the SSP-IT facility. SSP-IT is in continuing communication with these facilities regarding issues related to stormwater management.

The facility is predominantly paved (asphalt), and includes two large warehouses, two modular office buildings, a break/locker room, and two scale houses. A large automobile shredder, including associated separators and conveyors, is located at the southwest corner of the property, and a hydraulic guillotine shear is situated in the north-central portion of the property.

3.2 Operations Description

Metal scrap consisting of a wide variety of recycled items including metal parts, automobiles, appliances, and steel fabrication remnants is delivered to the facility from private and commercial parties by truck, rail, or barge. The scrap is weighed, graded and sorted according to its type, size and thickness, and the transport is directed to the appropriate location at the facility for offloading.

Once received, the scrap material is either processed immediately (e.g., in the shredder or shear, depending on the grade of the material), or is staged for future processing or offsite transfer. Materials processed in the shredder include automobiles, appliances, baled and loose tin and sheet metal, and other relatively thin metals. The shredder reduces the size of the scrap and separates the ferrous metals from non-ferrous metals and nonmetallics (Automobile Shredder Residue [ASR]) using magnetic, gravity, and air-flow separators. The shear is used to re-size steel plate, heavy-walled pipe, cable, and other relatively thick scrap, using a hydraulic guillotine. Items not amenable to processing in either the shredder or the shear may be cut by portable shears or by torch, or transferred offsite as-is.

Processed and unprocessed scrap, as well as processing residues (e.g., ASR, nonmetallic components, etc.), is temporarily staged at the facility in outdoor piles until offsite shipment is arranged. The processed and sorted scrap is then loaded into trucks, rail cars, cargo containers, barges, or ships for shipment off site to domestic and foreign steel mills, where the material is melted and formed into new steel for manufacturing of new products. The ASR is loaded on trucks for shipment offsite for use as an approved alternate daily cover material at appropriate Subtitle D landfills.

In addition to these primary facility operations, several support operations, including weigh-scales, vehicle and equipment maintenance, steel remnant and bulk material

(e.g., pig iron, ferro-manganese, silica-manganese, glass, etc.) storage and sales, and truck washing, are conducted at the facility. Materials related to these support operations that have the potential to adversely impact stormwater, including petroleum products, coolants (glycol), and waste fluids (oils and coolant), are stored either indoors or in a covered outdoor area provided with secondary containment. Steel, pig iron, manganese, and similar bulk materials are typically stored outdoors in paved areas divided by steel retaining walls.

3.3 Site Map

Pursuant to the requirements of NPDES General Permit 1200-Z, a site map of the facility is provided with this SWPC Plan. The site map shows the following features:

- Drainage patterns.
- Drainage and discharge structures.
  - Catch basins.
  - Sumps.
  - Storm sewer piping.
  - Outfalls.
- An outline of the drainage area for each stormwater outfall.
- Paved areas and buildings within each drainage area.
- Areas used for outdoor manufacturing, treatment, storage, and/or disposal of significant materials (no disposal occurs at the site).
- Existing structural control measures for reducing pollutants in stormwater run-off.
  - Oil/water separators.
  - Booms.
  - Grease traps.
- Material loading and access areas.
- Hazardous waste treatment, storage and disposal facilities (NONE).
- Locations of wells, including waste injection wells, seepage pits, dry wells, etc. (only one well, a cooling water supply well, exists on-site).

- Locations of springs, wetlands, and other surface water bodies.
  - Willamette River.
  - Berthing Slip (appendage of Willamette River).

3.4 Stormwater Drainage

Stormwater run-off at the SSP-IT facility is routed to 20 outfalls which discharge into the Willamette River. Each of the outfalls serves a specific drainage area within the facility boundaries, as shown on the site map provided with this SWPC Plan. Table 1 presents a summary of each of the outfalls at the facility, the activities conducted in the associated drainage areas, and the significant materials present.

In addition to the facility drainage areas served by the outfalls identified in Table 1, precipitation incident in three drainage areas is contained and used in the scrap processing operations at the site. These areas are described below:

- The area immediately surrounding the shredder (approximately three acres) is paved and provided with catch basins piped to a nearby 270,000 gallon collection tank. In additional to shredder operations, this area is used for storage of unprocessed scrap items, processed scrap, and ASR. Water collected in the tank treated through polymer addition, settling, and filtration, and is supplied to the shredder, as needed, to facilitate the shredding of metal materials. The water added to the shredder either evaporates, or is discharged with the shredded material, and drains back into the catch basins to be recycled. Because stormwater is not capable of providing a sufficient amount of water for this purpose during most of the year, water is also drawn from an onsite well, as well as from city water supplies, to fulfill the need for shredder process water.

- A small paved area south of the shear (approximately $^1/_2$ acre) is served by a catch basin which is also piped to the shredder process water recycling system. This area is used primarily for storage of scrap electrical cable. The electrical transformer for the shear, which does not contain PCB oils, is also located in this drainage area.

- The electrical transformer substation serving the shredder (located in the southwest corner of the site) is equipped with secondary containment including a blind sump. A manually operated pump has been installed in the sump to evacuate the containment area, if necessary. This water would be pumped into the shredder process water recycling system. However, precipitation collected in the containment area is typically minimal, and evaporates.

Table 1: Site Drainage Summary			
OUTFALL ID [1]	DRAINAGE AREA ACTIVITIES	SIGNIFICANT MATERIALS	POTENTIAL POLLUTANTS
1	Non-ferrous scrap receiving and storage, remnant steel storage, vehicle parking and traffic, scrap weighing, offices	Parked vehicles, ferrous and non-ferrous materials	Oil and grease, petroleum hydrocarbons, heavy metals (dust)
2	Shredder residue (ASR) stockpiling and loading, heavy equipment parking, truck loading, crushed automobile storage, shredded scrap storage	Stored equipment, crushed automobiles, ferrous and non-ferrous scrap, ASR	Oil and grease, petroleum hydrocarbons, PCBs, heavy metals (dust)
3, 4, 6	Steel storage, bulk material (pig iron, glass) storage	Steel and other ferrous materials	Heavy metals (dust)
5	Steel storage, bulk material (pig iron, glass) storage, vehicle weighing and traffic	Steel and other ferrous materials	Oil and grease, petroleum hydrocarbons, heavy metals (dust)
7, 10, 15	Ship slip and dock activities, scrap, steel and metal product loading and unloading	Heavy equipment, rail cranes, railroad cars and engines, scrap stockpiles	Oil and grease, petroleum hydrocarbons, heavy metals (dust)
8, 9, 11, 12, 17	These outfalls are remnants of an historical shipyard. They are interconnected and accessible by manhole, but they do not serve any catch basins at the site	NA	NA
13	Hydraulic shear, dock activities, scrap, steel and metal product loading and unloading	Shear, heavy equipment, railroad cars and engines, scrap stockpiles	Oil and grease, petroleum hydrocarbons, heavy metals (dust)
14	Ferrous scrap storage, vehicle and rail road traffic, vehicle parking, offices	Parked vehicles, ferrous scrap	Oil and grease, petroleum hydrocarbons, heavy metals (dust)
16	Vehicle parking, equipment storage, petroleum secondary containment area (under roof)	Parked vehicles, stored equipment, potential spillage	Oil and grease, petroleum hydrocarbons, antifreeze, heavy metals (dust)
18	This outfall primarily serves adjacent properties (permitted separately). A small fuel island at the east end of the property (operated by SSP) is also served by this outfall.	Vehicle traffic, potential spillage	Oil and grease, petroleum hydrocarbons, heavy metals (dust)
19	Vehicle traffic, rail car storage	None	Dust, roadway accumulations
20	Rail car storage, scrap storage	Ferrous scrap	Heavy metals (dust), oil and grease
[1] - Outfall locations are shown on the Site Map provided with this SWPC Plan.			

3.5 Significant Materials and Potential Stormwater Pollutants

The NPDES General Permit 1200-Z requires the SWPC Plan to include a description of "significant materials" at the site which may be exposed to stormwater. For the purposes of the permit, "significant materials" are defined as including, but not limited to, "raw materials; fuels; materials such as solvents, detergents and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical that a facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ash, slag and sludge that have the potential to be released with storm water discharges."

Significant materials that might be expected at the SSP-IT facility include the following:

- Ferrous metal scrap.
- Non-ferrous metal scrap.
- Plastic and rubber shredder residue (ASR).
- Bulk materials (pig iron, manganese, glass, etc.).
- Petroleum products (new and used).
- Trash and debris.
- Steel and other metal products.

Both new and used vehicle maintenance fluids (e.g., oil, hydraulic fluid, antifreeze, etc.) are stored in drums and other closed containers, either inside an enclosed building, or within a covered secondary containment area. Potential contact of these materials with stormwater would be limited to leaks from vehicles or equipment, or potential spills.

As a result of the presence of these significant materials, and as summarized above in Table 1, the following potential stormwater pollutants have been identified:

- Petroleum hydrocarbons.
  - Oil and grease.
  - Hydraulic fluid.
  - Fuels (diesel, gasoline, etc.).
- Antifreeze (glycol).
- Heavy metals (dust).
- Dust.

4.0 STORMWATER POLLUTION CONTROLS

This section describes the stormwater pollution controls that will be implemented at the facility to reduce or eliminate the potential for pollutants impacting stormwater run-off from the site. The following categories of pollution controls are addressed, as required by NPDES General Permit 1200-Z:

- Stormwater Best Management Practices.
  - Containment.
  - Oil and Grease.
  - Waste Chemicals and Material Disposal.
  - Erosion and Sediment Control.
  - Debris Control.
  - Stormwater Diversion.
  - Covering Activities.
  - Housekeeping.
  - Other Operational Controls. (in addition to those required by permit)

- Spill Prevention and Response.

- Preventive Maintenance.

- Employee Education.

- Recordkeeping and Internal Reporting Procedures.

- Plan Review and Revision Requirements.

4.1 Stormwater Management

The potential for stormwater pollution occurs when incident rainwater or stormwater run-off comes into contact with pollutants on exposed surfaces. Pollutants may dissolve, become suspended, or float on the surface of the water, or may attach (e.g., via absorption or adsorption) to other particulates suspended in the stormwater. Stormwater quality at the SSP-IT facility has the potential to be impacted as a result of exposed or leaking vehicles or equipment, stockpiled scrap metals and bulk materials, stockpiled shredder residues, and exposed pavement impacted by vehicle traffic and parking.

The vast majority of the SSP-IT property (approximately 90%) is paved (asphalt), and is graded to drain to catch basins. Most of the site's catch basins are designed as grease traps (i.e., with an inverted drain pipe). Stormwater run-off drains via sheet flow to the catch basins, the majority of which are piped to oil/water separators and/or settling cascades, and ultimately to the outfalls serving the site. There are a total of 20 stormwater outfalls serving the site, which discharge to the Willamette River either directly, or via the berthing slip. As indicated in Table 1, above, five of the outfalls discharging to the slip (Outfalls #8, #9, #11, #12, and #17) are remnants of a historical ship yard, and are not currently connected to any catch basins. These outfalls are

interconnected and accessible by manhole, and are equipped with three-stage cascades, but they have been observed to discharge only minimal volumes of stormwater during heavy rain events.

In addition, Outfall #18 primarily serves facilities east of the SSP-IT facility, at least one of which uses the outfall for permitted discharge of non-contact process water. SSP operates a small fuel island in an area near the east property boundary that is also served by this outfall. However, stormwater in the fuel island area drains through grease-trap catch basins and through a three-stage oil/water separator prior to joining other flows directed to the outfall.

As described in detail in Section 3.4, and again in Section 4.1.1 below, precipitation incident in three facility drainage areas is contained and used in the scrap processing operations at the site. These areas include the area immediately surrounding the shredder (approximately three acres), a small area south of the shear (approximately $^1/_2$ acre), and a small secondary containment system for the shredder electrical transformer substation.

SSP has implemented a variety of stormwater pollution controls, BMPs, and structural modifications to minimize the potential for contamination of stormwater run-off from the site. Stormwater pollution controls can generally be categorized as either source controls or structural controls. Source controls are practices that reduce or eliminate the potential for contact of stormwater with pollutant sources, or eliminate non-stormwater discharges (e.g., spills or leaks). Structural controls are in-pipe or end-of-pipe treatment systems and discharge volume reduction devices. Some controls, such as containment structures designed to isolate potential pollutant sources, may be classified in either category.

In general, source controls are given the highest priority for implementation under this SWPC Plan. SSP believes that control of potential pollution sources is a more proactive approach to stormwater pollution prevention, minimizing the need for often expensive end-of-pipe treatment technologies. However, due to the nature of scrap recycling operations and existing conditions, structural controls have also played an important role in stormwater pollution prevention at the facility, and will continue to be evaluated for implementation.

Table 2 provides a summary of the existing and proposed stormwater pollution control measures relevant to the SSP-IT facility. As indicated in the table, existing control measures are continuously undergoing evaluation for applicability and effectiveness, and some have been designated for improvement. The following subsections describe the control measures in greater detail.

Table 2: Stormwater Pollution Controls and BMPs					
Control/BMP	Frequency	Current	Improvement Needed	Future	Implementation Date
All vehicle maintenance conducted indoors.	at all times	✓			
Maintenance schedule developed for all vehicles/equipment (based on manufacturer's recommendations).	once	✓			
Drip pans or other containment in use for all stored vehicles/equipment to contain leaks.	at all times	✓	✓		Oct. 99
Lids/covers in use on all trash bins and dumpsters.	at all times		✓		Oct. 99
Oil/water separators inspected for excessive sediment accumulation (i.e., above drain pipe inlet).	monthly	✓			
Oil/water separators pumped out.	as needed	✓			
Additional treatment technology implemented for outfalls not meeting water quality criteria.	as needed		✓		Jun. 00
All vehicle washing restricted to covered truck wash.	at all times	✓			
Existing pavement maintained to minimize erosion.	as needed	✓			
Accessible areas are swept with a vacuum/broom sweeper.	weekly	✓			
Accessible areas are swept with a magnetic sweeper.	bi-weekly	✓			
Unpaved portions of site inspected for signs of erosion.	monthly	✓			
Run-off from shredder residues diverted away from outfalls and into shredder process water.	at all times	✓			
Run-off from outdoor storage areas diverted away from outfalls.	at all times	✓	✓		Sep. 00
Shredder residues stockpiled under cover pending offsite shipment and disposal.	at all times			✓	Sep. 00
Accurate storm sewer drainage and piping layouts maintained.	at all times	✓	✓		Oct. 99
Hazardous substances properly identified, labeled and stored.	at all times	✓			
Spill containment pallets in use under all containers of liquids outside of secondary containment structures.	at all times		✓		Oct. 99
Dust controlled by maintaining clean pavement and posting speed limits, limiting the need for water application.	as needed	✓	✓		Immediate
Signs/stencils used to warn against dumping materials into storm drains, where problems exist.	at all times	✓			
Dry cleanup methods (e.g., absorbent) used for spilled or leaked liquids in processing and maintenance areas.	as needed	✓			
Corporate Environmental Policy established and reviewed for applicability and adequacy (revised as necessary).	annually	✓			
Scrap acceptance policy established and reviewed for applicability and adequacy (revised as necessary).	annually	✓			
Procedures established for managing potentially hazardous materials inadvertently received.	once	✓			
Spill prevention and response procedures established.	once	✓			
Employees trained regarding corporate environmental policy, stormwater pollution prevention, and spill response.	annually	✓			
Stormwater pollution prevention procedures reviewed, and revised as necessary.	annually	✓			
Storm drain covers provided in areas where spills or leaks are most prone to occur.	at all times	✓			
Spill response kits provided in areas where spills are most prone to occur.	at all times	✓			
Stationary equipment inspected for evidence of leaks or maintenance issues which may result in leaks.	weekly	✓			
Stormwater outfall discharges inspected for color, foam, sheen, and other visible evidence of potential problems.	monthly	✓			

4.1.1 CONTAINMENT

As noted above, containment measures, which involve isolating potential pollution sources from contact with stormwater, may be classified as both a source control and a structural control. Containment measures play an important part in stormwater pollution control at the SSP-IT facility, and is generally considered to be the preferred mechanism for reducing or eliminating adversely impacted stormwater discharges. The following containment measures have been implemented at the facility to minimize the exposure of significant materials to stormwater:

- To the extent possible, vehicle and equipment maintenance activities are conducted inside a fully enclosed, concrete floored building. The building floor slopes toward low spots in the floor that serve as blind liquid collection points. Drains inside the building that connect to the site's stormwater sewer system are not located in areas used for maintenance activities. Vehicle maintenance outside of the building is conducted only in the event of an emergency, such as the failure of hydraulic systems, and is limited to activities necessary to ensure capture and containment of fluids and other significant materials. Equipment maintenance outside of the building is limited to items that are not mobile or portable.

- New and used motor oil, hydraulic fluid, antifreeze, etc. are stored in drums and other sealed containers under roof in a concrete secondary containment unit. Containers are elevated above the floor of the containment structure to facilitate detection and collection of spilled and accumulated liquids. Small quantities of these items may also be stored inside of the vehicle maintenance building, elevated on pallets or placed in polyethylene or steel drip pans.

- The paved area immediately surrounding the automobile shredder (approximately three acres) is sloped toward catch basins, which are piped to a nearby storage tank. Water collected in the tank is treated and supplied to the shredder, as needed, as a coolant/lubricant to facilitate the shredding of metal materials. The water added to the shredder either evaporates in the process, or is discharged with the shredded material, draining back into the catch basins to be again recycled. This area is used for stockpiling of shredded ferrous and non-ferrous metals and ASR prior to offsite shipment.

- A small paved area south of the shear (approximately $^1/_2$ acre) is served by a catch basin which is also piped to the shredder process water recycling system. A transformer pad, which supports the electrical transformers serving the shear, is situated within the boundaries of this small drainage area. In addition, storage of insulated cables and other wire products is limited to this area.

- The electrical transformer substation serving the shredder (located in the southwest corner of the site) is equipped with secondary containment including a blind sump. A manually operated pump has been installed in the sump to evacuate the containment area, if necessary. However, precipitation collected in the containment area is typically minimal, and is generally allowed to evaporate.

- Drip pans are placed beneath vehicles and equipment that show evidence of potential oil or fluid leakage, and that are parked or stored for periods longer than one shift (eight hours).

4.1.2 OIL AND GREASE

Oil and grease separation is a structural control that is in extensive use at the SSP-IT facility. Oil/water separators are passive, flow-through, multi-step chambers designed to separate floating product and settleable solids from the discharge stream. The following oil and grease separation control measures have been implemented at the site.

- There are fourteen oil/water separators in existence at the facility. The oil/water separators vary in size from 1 to 10 stages, and are installed in discharge lines serving the following areas:

  - A Vortechs Stormwater Treatment System, designed to remove floating product (oil and grease), as well as settleable solids, is installed at Outfall #2. This outfall serves the drainage area immediately north of the shredder, in which bulk materials, crushed automobiles, shredder residues, and other significant materials are stored. Shredder process water, which is recycled through a treatment system for re-use, is not discharged through this unit.

  - One ten-stage oil/water separator is installed in the drain line that serves the shear oil cooler. Some of the stormwater run-off from drainage area #5 passes through this unit and into the oil cooler, where it is used as a non-contact cooling fluid. The water is continuously recycled, and excess water is routed through the ten-stage oil/water separator before being discharged from Outfall #5.

  - One three-stage oil/water separator is installed in the drain line leading from the yard scale to the line leading to Outfall #5. This separator is designed to remove floating product and entrained solids.

- One single-stage oil/water separator is installed in the small paved drainage area near the shear electrical transformer pad. The unit is designed to remove oil and grease from the stormwater run-off prior to drainage into the shredder process water recycling system. Stormwater from this drainage area does not exit the site.

- One three-stage oil/water separator is installed at Outfall #7. The drainage area served by this unit, located on the west end of the dock, is used primarily for loading and unloading bulk materials and steel products from berthed ships.

- One three-stage oil/water separator is installed at Outfall #14. The drainage area served by this unit, located on the dock immediately east of the shear, is used for staging of scrap metals which must be torch cut or otherwise dismantled either prior to, or in lieu of, being resized in the shear.

- One three-stage oil/water separator is installed at Outfall #16. The drainage area served by this unit, located on the dock east of the shear, is used for staging of scrap metals which must be torch cut or otherwise dismantled either prior to, or in lieu of, being resized in the shear.

- One three-stage oil/water separator is installed at each of Outfalls #8, #9, #11, #12, and #17. These outfalls are remnants of a historical ship yard, and are not currently connected to any catch basins. These outfalls are interconnected and accessible by manhole; they have been observed to discharge only minimal volumes of stormwater.

- Approximately 80% of the storm drain catch basins at the SSP-IT property are designed with an inverted outflow pipe to trap oil and grease in the basin. The outflow pipe discharges water collected in the basin from below the water surface, essentially trapping oil, grease and other floating products in the basin. These catch basins are located throughout the site, but are concentrated in areas of storage and operations (e.g., most of the non-grease trap basins are located along access roads and in parking areas).

- Passive oil skimmers (absorbent pillows) are placed in all catch basins throughout the site. These pillows are designed to absorb petroleum products floating on the surface of the collected water, thereby reducing the amount of oil which may flow out of the basin to the oil/water separators and the outfalls.

- Straw bales have been placed around some storm drain catch basins to control the influx of sediments, as necessary.

- Drip pans are placed beneath vehicles and equipment that show evidence of potential oil or fluid leakage, and that are parked or stored for periods longer than one shift (eight hours).

- Small spills or releases of oil or other petroleum products are cleaned up using dry absorbents which are swept up and properly disposed upon completion of clean-up. No detergents, solvents, or other liquids are used.

- Oil/water separators are inspected on a monthly basis for buildup of sediments, grease, and related materials. The chambers are pumped out and cleaned by a licensed private wastewater contractor, as necessary.

- Catch basin skimmers are inspected at least monthly, and are replaced as necessary. Oil-soaked absorbents are properly disposed.

4.1.3 WASTE CHEMICALS AND MATERIAL DISPOSAL

Management controls related to waste chemicals and material disposal include both source control and structural control options. The following management practices related to waste chemical and material disposal have been implemented at the site:

- SSP's stringent scrap metal acceptance policy (included as Appendix B) requires that waste materials be removed from discarded items prior to acceptance.
  - Appliances must have all electrical components removed.
  - Vehicles must be drained of all fluids, including fuel, radiator and air-conditioning coolants, and lubricants.
  - Lead acid batteries must be removed from all vehicles or equipment.
  - Compressors from appliances must be removed, drained, and cut in half.
  - Aerosol cans must be empty, and either punctured or crushed.
  - Drums, barrels, and other containers must be thoroughly cleaned and cut open for inspection.

- Waste coolants and lubricants generated by SSP are accumulated in above ground storage tanks or drums in a covered, concrete secondary containment structure prior to periodic offsite shipment for recycling.

- Containers are properly labeled, are kept closed, and are maintained in appropriate storage areas. Any containers damaged in shipment or storage are promptly over-packed, or the contents are transferred to a sound container.

- Solvents and degreasers used in a self-contained parts cleaner are periodically exchanged by an outside contractor, and waste solvents are transported offsite for recycling.

- Although uncommon, waste items delivered improperly to SSP (e.g., lead-acid batteries) are temporarily stored under cover in the maintenance building pending offsite shipment for proper disposal.

4.1.4 EROSION AND SEDIMENT CONTROL

The vast majority of the SSP-IT property (approximately 90%) is paved. Additional portions of the site are scheduled to be paved in the future. Currently unpaved areas primarily consist of narrow strips of property along the banks of the Willamette River and around the head of the ship berthing slip. Very narrow strips of unpaved area also exist along the network of railroad tracks at the site. The following measures have been implemented at the site to control sediment and erosion:

- Accessible areas are swept using a vacuum/broom sweeper on an average of once per week.

- Vegetation (primarily indigenous grasses and blackberry) has been allowed to take root in unpaved areas along the water banks to reduce erosion. In addition, rip-rap has been historically emplaced on the slopes of the river bank which may be prone to erosion due to wave action, and minor bank stabilization work was performed under permit following severe flooding in 1996 and 1997.

- Straw bales, drain filters, or similar mechanisms are used to minimize the influx of sediment into stormwater catch basins and into the river, where appropriate.

- Facility-wide inspections are conducted at least once per month to identify areas of erosion, damaged pavement, and areas requiring sweeping.

- In areas where bulk material storage is conducted, drain covers may be emplaced during storage of materials which might contribute to suspended solids in stormwater run-off (e.g., fine particulates or dusty materials), as necessary.

4.1.5 DEBRIS CONTROL

Considering the nature of facility operations, debris build-up is of significant concern. Although scrap recycling operations requires the accumulation of both processed and unprocessed scrap metals in stockpiles, SSP personnel strive to ensure that only

designated areas are used for these stockpiles, and that all roadways, railways, parking areas, work areas, and buildings remain free of accumulated debris. The following measures have been implemented at the facility to control debris:

- Accessible areas are swept using a vacuum/broom sweeper on an average of once per week.

- Accessible areas are swept using a magnetic collector on an average of once per month.

- Trash dumpsters are placed strategically around the site to promote proper disposal of paper, wood, and other items that may be discarded during truck loading and offloading.

- Two trailer sweep-off areas are designated along the access road to the facility to allow suppliers to dispose of debris prior to exiting the site. Permanent three-sided bins are provided at each location to contain the debris. These bins are cleaned out on a weekly basis.

- Facility-wide inspections are conducted at least once per month to identify areas of debris build-up that need cleanup.

4.1.6 STORMWATER DIVERSION

Stormwater diversion controls have been implemented at the site primarily as a means of ensuring that stormwater drainage in areas that may be prone to adverse impact is either recycled, or is directed through treatment systems (e.g., oil/water separators) prior to discharge (refer to Section 4.1.2, above). The following stormwater diversion measures have been implemented at the facility:

- The paved area immediately surrounding the automobile shredder (approximately three acres) is sloped toward catch basins, which are piped to a nearby collection tank. Water collected in the tank is treated and supplied to the shredder, as needed, to facilitate the shredding of scrap metals. The water added to the shredder either evaporates in the process, or is discharged with the shredded material, draining back into the catch basins to be recycled.

- A small paved area south of the shear (approximately $^1/_2$ acre) is served by a catch basin which is also piped to the shredder process water recycling system.

4.1.7 COVERING ACTIVITIES

Activities and storage areas that are most prone to potentially adversely affecting stormwater quality are maintained under cover, either inside of the maintenance building, or in a roofed concrete secondary containment structure. These areas are further discussed in Section 4.1.1, above.

In addition, SSP is currently investigating the option of reconfiguring the conveyors delivering ASR from the shredder to allow deposition of the residues inside of a building. This would result in a substantial decrease in the amount of significant materials which would be exposed to incident precipitation or stormwater run-off at the site.

Covered storage and operations areas are inspected monthly to ensure that any significant materials stored or used in the areas are being properly contained and managed.

4.1.8 HOUSEKEEPING

Maintaining a clean and orderly job site is instrumental for controlling potential stormwater pollutants, as well as for ensuring a safe working environment. The following management practices related to good housekeeping are followed at the SSP-IT facility:

- Accessible areas are swept using a vacuum/broom sweeper on an average of once per week, and are swept using a magnetic collector on an average of once per month. Water is not used to flush the pavement. Minimal amounts of water are used only for dust control during dry periods.

- Trash dumpsters are placed strategically around the site to promote proper disposal of paper, wood, and other items that may be discarded during truck loading and offloading.

- Two trailer sweep-off areas are designated along the access road to the facility to allow suppliers to dispose of debris prior to exiting the site. Permanent three-sided bins are provided at each location to contain the debris. These bins are cleaned out on a weekly basis.

- Containers are properly labeled, are kept closed, and are maintained in appropriate storage areas. Any containers damaged in shipment or storage are promptly over-packed, or the contents are transferred to a sound container.

- Drip pans are placed beneath vehicles and equipment that exhibit evidence of potential oil or fluid leakage, and that are parked or stored for periods longer than one shift (eight hours).

- Stencils or other signage noting that dumping of foreign materials is prohibited are provided at catch basins where problems may occur.

- Facility-wide inspections are conducted at least once per month to identify areas needing cleanup and general policing.

4.1.9 OTHER OPERATIONAL CONTROLS

Significant operational controls are in place at the facility that exceed the specific requirements of the NPDES General Permit. These controls include the following:

- Periodic community outreach events are conducted in order to elevate the awareness of scrap suppliers toward SSP's stringent scrap acceptance policies. These events include signage posted at SSP-IT, policy and guideline mailings, and visits to supplier facilities by SSP environmental and/or management personnel.

- An inbound material inspection program has been developed to minimize the potential for receipt of unacceptable materials. The program includes the following:
  - Passage of every load of scrap entering the facility through a radiation detector.
  - Visual screening of every load of scrap received at the facility by scale-house personnel.
  - Visual screening of all scrap materials offloaded from transport vehicles by equipment operators and ground personnel in the yard.
  - Periodic thorough inspections of offloaded scrap from specific suppliers (on a rotating basis) by environmental or management personnel.
  - In the event that unacceptable or suspect materials are detected as a result of this program, the materials may be segregated from the scrap for proper disposal, may be returned to the supplier, or the entire load may be rejected. In any case, the supplier will be contacted and informed of the rejection, and the scrap acceptance policy will be reiterated.

4.2 Spill Prevention and Response

SSP-IT maintains a written Spill Prevention, Control, and Countermeasures (SPCC) Plan, which details the specific procedures to be followed in the event of a spill or release of oil, fuel, or other petroleum product a the facility. A copy of the SPCC Plan is provided as Appendix C.

Potential causes of spills or leaks of significant materials at the facility could include container failures, equipment or vehicle leaks, and spills of shredded materials, ASR, and/or chemicals during handling or transport operations. Frequent inspections of storage, maintenance and processing areas, and inspections of vehicles and equipment are intended to identify potential problems areas, and to allow the timely detection of any spillage prior to adversely impacting the storm sewer system, or reaching surface waters.

Spill response equipment, including containment and absorbent booms, absorbent socks and pads, and related safety equipment, are maintained on-hand in spill kits placed in strategic locations throughout the site.

Spill prevention and response provisions include the following:

- Operations personnel are equipped with radios and/or cellular phones to provide immediate communication in the event of an accidental release.

- Storm drain covers are available to block catch basins in the event of a spill which has the potential to reach the drain.

- Spill kits containing absorbent pads and booms, and other cleanup and safety supplies are placed in strategic locations throughout the site.

- An adequate supply of absorbent and containment booms and similar items are available to contain and clean-up any spilled materials. Spilled materials are cleaned up using dry methods only, whenever possible.

- Containers of liquids, including oils and other petroleum products, are stored within secondary containment, or are placed on spill containment pallets.

- Drip pans are placed beneath vehicles and equipment that exhibit evidence of potential oil or fluid leakage, and that are parked or stored for periods longer than one shift (eight hours).

- Containers are periodically inspected to ensure that they are closed, properly labeled, and in good condition.

4.3 Preventive Maintenance

Preventive maintenance involves the regular inspection, cleaning and mechanical maintenance of vehicles, equipment, and stormwater management structures, as well

as other activities designed to reduce the likelihood of spills and leaks. The following preventive maintenance provisions have been implemented at the SSP-IT facility:

- A vehicle and equipment inspection and maintenance program has been developed which includes the following:
  - Regularly scheduled vehicle and equipment inspections focussed on fluid leaks.
  - Service and inspection checklists specific to each type of vehicle and major item of equipment.
  - Maintenance logs detailing services performed on each vehicle and major item of equipment.
  - Training requirements for personnel involved in vehicle and equipment operations, inspection, and maintenance.

- Major items of equipment that are stored or used outdoors are cleaned on a regular basis to remove accumulated oil and grease from exterior surfaces (except as necessary for proper operation).

- Vehicle and equipment maintenance is conducted within the enclosed maintenance building, to the extent possible.

During monthly site inspections, the inspector (a designated member of the Stormwater Pollution Prevention Team [refer to Section 2.0]) will determine whether potential pollution sources are being adequately controlled, and whether pollution controls specified in the SWPC Plan have been properly and effectively implemented. Inspections will be documented using a comprehensive Site Inspection Checklist (included as Appendix D), which will include the dates of inspection, items inspected, problems or concerns encountered, and corrective measures implemented. The facility drainage areas described in Table 1 will be included in the inspections, and the following items will be inspected, at a minimum:

- Containment structures, booms and berms, on a monthly basis, to ensure that they are intact and functional.

- Discharges from outfalls, on at least a monthly basis when occurring, to inspect for color, foam and sheen.

- Facility-wide inspections, at least once per month, to identify areas of erosion, damaged pavement, and areas requiring sweeping.

- Oil/water separators, on a monthly basis, for buildup of sediments, grease, and related materials. The chambers are pumped out and cleaned by a licensed private wastewater contractor, as necessary.

- Catch basin skimmers, at least monthly. Spent absorbents are replaced as necessary, and are properly disposed.

4.4 Employee Education

SSP has developed a comprehensive employee training program which includes practices and procedures related to stormwater management, pollution prevention, and spill control and countermeasures. Operations personnel begin their training by viewing a stormwater pollution prevention video prepared and distributed through the Institute of Scrap Recycling Industries (ISRI). Additional training is provided by the facility's environmental and safety staff, and includes the following:

- Information on the acceptability and unacceptability of certain types of scrap and other materials.
- Proper procedures for containing or otherwise isolating unacceptable materials and spills.
- Locations of spill response kits and other emergency equipment.
- Proper notification procedures.

Training is documented using Training Record forms (included as Appendix E). Training Records are maintained for each employee for a minimum of five years, and are retained at the SSP Health and Safety office in the employee personnel files.

In addition to employee training, SSP-IT strives to educate its scrap suppliers regarding scrap acceptability, both to prevent improper receipt of unacceptable materials, and to protect site stormwater from potential pollution sources. SSP-IT has a written scrap acceptance policy (included as Appendix B) which is distributed to suppliers in periodic mailings and in frequent hand-outs when entering or exiting the facility. The policy identifies specific items that cannot be accepted, as well as particular preparation requirements for other items. The policy is periodically reviewed and updated, and updates are communicated promptly to SSP's suppliers.

4.5 Recordkeeping and Internal Reporting Procedures

Records of site inspections are maintained using a comprehensive Site Inspection Checklist (included as Appendix D). This checklist provides a means for documenting the dates of inspection, items inspected, problems or concerns encountered, and corrective measures implemented.

Site Inspection Checklists, stormwater monitoring results, records of spills and associated corrective action, and preventive maintenance records will be retained on file at the SSP Environmental office for a minimum of five years.

Stormwater monitoring results will be tabulated and submitted in a report to DEQ's Northwest Region by July 15th of each year. Other relevant records will be made available to authorized representatives of the DEQ upon request.

4.6 Plan Review and Revision Requirements

Based on the results of monthly site inspections detailed previously, the SSP-IT facility will periodically assess the overall effectiveness of this SWPC Plan, and will implement modifications or improvements to the plan, as appropriate. The periodic plan assessment will include the following:

- The site map will be modified or updated to reflect current facility conditions.
- Identified potential stormwater pollution sources will be visually inspected to determine if they are being adequately and effectively controlled.
- Pollution control structures will be evaluated to determine if they have been properly installed, and to assess their effectiveness.
- Pollution control measures will be evaluated to determine if they have been properly implemented, and to assess their effectiveness.
- Spill response equipment and supplies will be inspected to ensure proper operation and adequate supply.

In addition, the SWPC Plan will be reviewed within 60 days of receipt of any sampling results demonstrating that effluent benchmarks specified in the NPDES General Permit have not been met. The purpose of this review will be to determine if the SWPC Plan has been properly and effectively implemented, and to identify any additional technically feasible and economical site controls that may be implemented to further improve the quality of stormwater discharges. Based on this review, the SWPC Plan may be revised, as necessary, and the revised plan will be submitted to the DEQ within 14 days of completion.

5.0 MONITORING PROGRAM

In compliance with the NPDES General Permit, stormwater samples will be collected from the active discharge outfalls serving the facility twice each year. One of the sampling events will be conducted during the first month of the Fall during which stormwater discharge occurs. The second event will be conducted no less that 60 days after the first event.

Monitoring for the purposes of this SWPC Plan will not include Outfalls #8, #9, #11, #12, and #17, since these outfalls are not currently connected to any catch basins and do not typically discharge stormwater. Also, Outfall #18 will not be included for monitoring under this plan, since it is sampled monthly by a neighboring facility as part of a separate NPDES Individual Permit.

SSP may elect to reduce the number of actual monitoring points at the facility based on site operations and specific activities conducted within the drainage areas, in accordance with NPDES General Permit Condition B.1(c). Discharges from multiple outfalls serving drainage areas representing similar activities, and where discharges are expected to be of similar composition, may be represented by a single monitoring point. In addition, outfalls serving areas with no exposure of stormwater to industrial activities will not require monitoring.

Visual monitoring at all outfalls and at areas of potential pollutant contact is required during at least one storm event per month during the rainy season (approximately October through April) that results in at least one hour of continuous discharge. In addition, visual monitoring at each outfall is required at least twice during the dry season (approximately May through September). These visual monitoring requirements will be met through monthly site inspections conducted as described in Section 4.0.

Collected stormwater samples must be representative of the discharge from the facility, and will be analyzed in accordance with the approved methods specified in 40 CFR 136.

Stormwater samples collected during the sampling events will be delivered to a laboratory for analysis for the parameters required by the NPDES General Permit, as summarized in Table 3.

Table 3: Stormwater Sample Analytical Requirements		
PARAMETER	ANALYTICAL METHOD	EFFLUENT BENCHMARK
Total Copper	EPA 6010B	0.1 mg/l
Total lead	EPA 7421	0.4 mg/l
Total Zinc	EPA 6010B	0.6 mg/l
pH	EPA 150.1	5.5 to 9.0 s.u.
Total Suspended Solids (TSS)	EPA 160.2	130 mg/l
Oil & Grease	EPA 413.1	10 mg/l
Floating Solids (associated with industrial activities)	Visual Observation	No Visible Discharge
Oil & Grease Sheen	Visual Observation	No Visible Sheen

The results of stormwater sample analyses will be tabulated and submitted to the DEQ's Northwest Region by July 15th for the preceding reporting period (July 1st through June 30th).

In the event that stormwater monitoring results indicate that a pollutant parameter for which the receiving water is water quality limited is being discharged in significant concentrations, a waste load allocation may be added to the permit conditions by the DEQ.

In the event that stormwater monitoring results indicate that a pollutant parameter is being discharged at a concentration that may be a threat to the water quality of the receiving stream, additional effluent limits may be added to the permit conditions by the DEQ.

Biannual sample analytical results and periodic visual inspection observations will be evaluated by SSP-IT's Stormwater Pollution Prevention Team during periodic SWPC Plan effectiveness assessments to determine if modified or additional stormwater management practices and/or structural controls are warranted. The SWPC Plan will be revised as appropriate, and employees will be properly trained as necessary.

6.0 IMPLEMENTATION SCHEDULE

In accordance with the requirements of NPDES General Permit 1200-Z, revision of the facility's SWPC Plan was required within 90 days of receipt of the General Permit. In addition, implementation of the plan, with the exception of site controls requiring capital improvements, was required within 90 days of SWPC Plan revision. Future revision of this plan may be required as a result of modification of the General Permit, and will be completed in accordance with the schedules provided in the modified permit, as applicable.

Site controls determined to be warranted based on SWPC Plan review (as described in Section 4.6) will be implemented in a timely manner, and will be incorporated into the SWPC Plan as an update. Updated SWPC Plans will be submitted to the DEQ within 14 days of completion.

7.0 ADDITIONAL PERMIT REQUIREMENTS

7.1 Waste Disposal Wells

Oregon Administrative Rule (OAR) 340-44-50 provides specific requirements for the use of waste disposal wells for stormwater drainage. The SSP-IT facility does not use waste disposal wells for stormwater drainage.

7.2 Surface Water Temperature Management Plan

Individual stormwater dischargers are not expected to cause a measurable increase in stream temperature. Compliance with the NPDES General Permit meets the requirement of OAR 340-41-26(3)(a)(D) to develop and implement a surface water temperature management plan. However, in the event that the Total Maximum Daily Load (TMDL) for temperature is being exceeded by stormwater dischargers in a specific river basin, additional management practices to reduce the temperature of discharges may be required. Such management practices may include increasing vegetation to provide shading, construction of underground conveyance systems or detention structures, or installation of filtration devices to reduce above-ground detention times.

In the event that additional temperature management controls are required by the DEQ, SSP-IT will revise the SWPC Plan to include management practices focussed on reducing discharge temperatures, as necessary.

7.3 Specific River Basin Requirements

The SSP-IT facility lies within the Willamette River Basin. Water quality standards for the Willamette River Basin are provided in OAR 340-041-0442 through OAR 340-041-0470.

In general, the effluent benchmarks specified in NPDES General Permit 1200-Z are expected to meet the water quality requirements for the Willamette River Basin. However, in some cases, monitoring requirements of the General Permit are not directly applicable for demonstrating compliance with Willamette Basin water quality standards. For example, based on the requirements of OAR 340-041-0445(2)(c), no more than a

10% cumulative increase in natural stream turbidities is allowed for a discharger, as measured relative to a control point immediately upstream of the turbidity causing activity. However, the NPDES General Permit does not require monitoring for turbidity, but for total suspended solids (TSS). Although the benchmark for TSS is expected to be protective of the turbidity standard, no direct correlation between the two measurements has been determined.

The DEQ is currently addressing this situation by modifying the NPDES General Permits for specific watersheds. In the event that additional monitoring or management controls are required by the modified permits (provided they apply to the SSP-IT facility), SSP-IT will revise the SWPC Plan to include those monitoring requirements and management practices, as necessary.

8.0 PLAN APPROVAL AND CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature

10/11/99
Date

Terry Gilcoft
Vice President/General Manager
Schnitzer Steel Products Co.

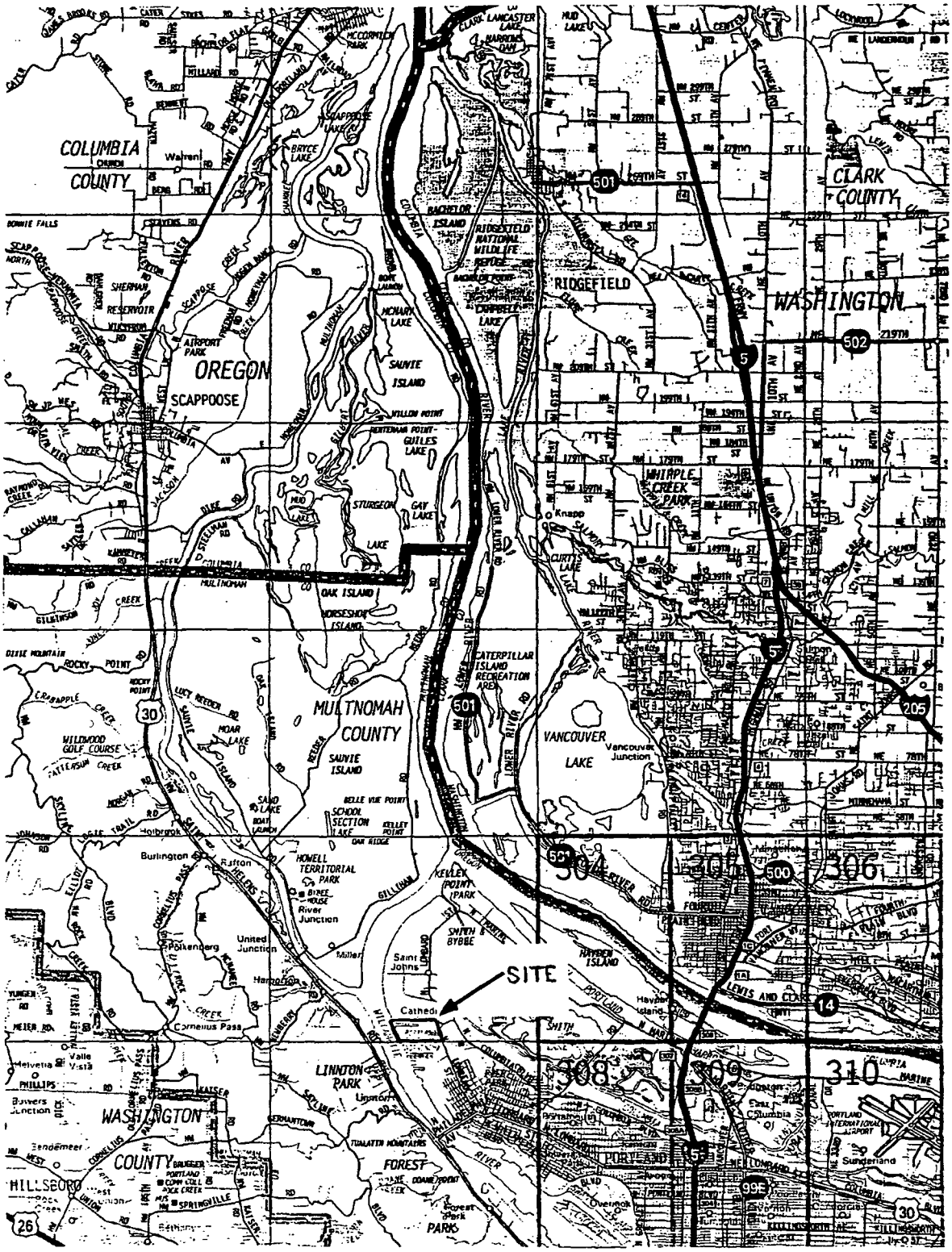
Being familiar with the Schnitzer Steel Products Co. facility at the International Terminals, and being knowledgeable in stormwater management, I hereby attest that this Stormwater Pollution Control Plan has been prepared in accordance with good engineering practices.

Signature

11 OCT 99
Date

Mathew J. Cusma, P.E.
Environmental Administrator
Schnitzer Steel Products Co.

FIGURES



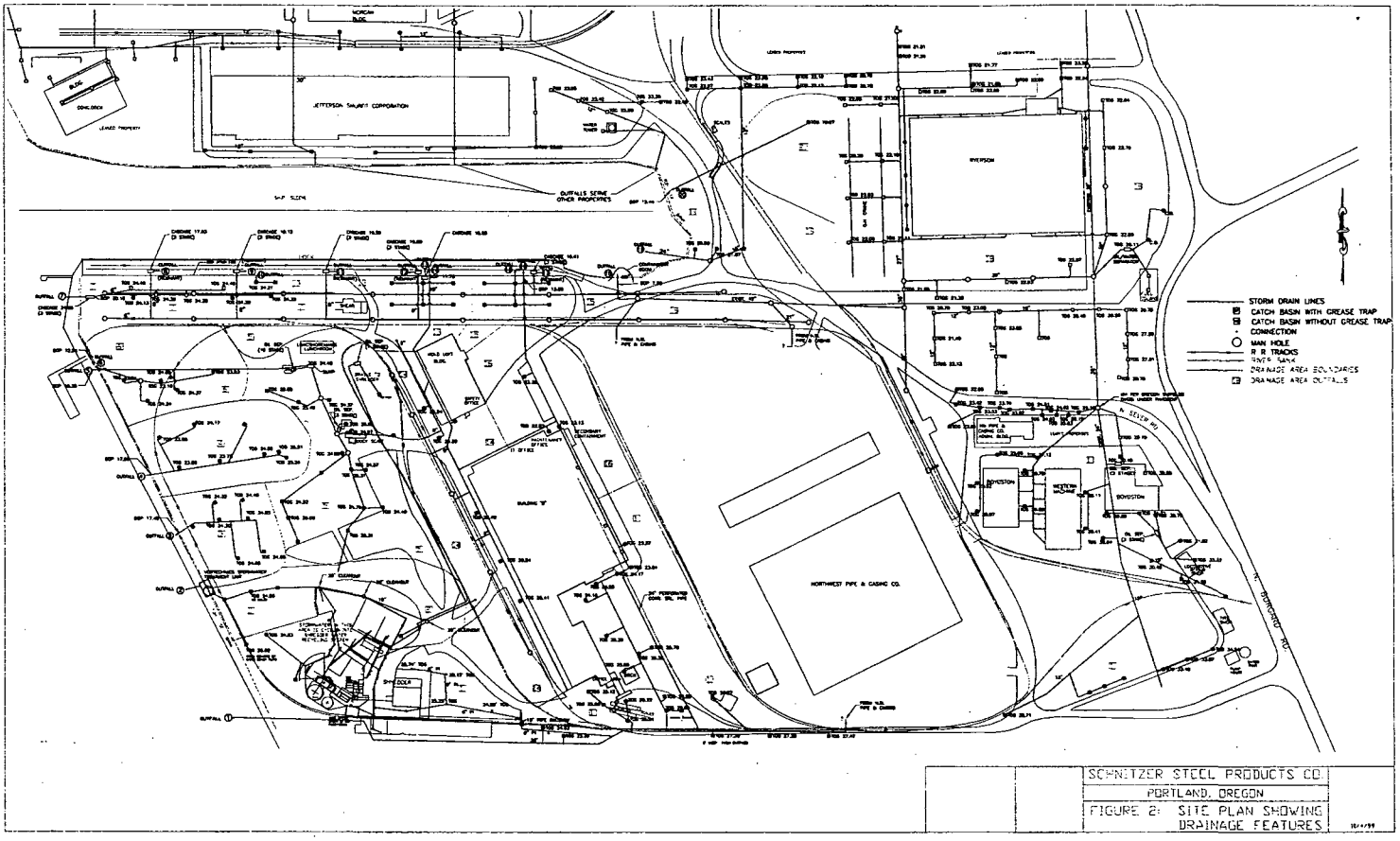
SCHNITZER STEEL PRODUCTS CO.

Portland, Oregon

Figure 1:

Site Location Map

SCHN00204581



SCHNITZER STEEL PRODUCTS CO.
PORTLAND, OREGON
FIGURE 2: SITE PLAN SHOWING DRAINAGE FEATURES

APPENDIX A:
NPDES GENERAL STORMWATER DISCHARGE PERMIT

GENERAL PERMIT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORM WATER DISCHARGE PERMIT

Department of Environmental Quality
811 Southwest Sixth Avenue, Portland, OR 97204
Telephone: (503) 229-5279
Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

ISSUED TO:

All Owners Or Operators Of Storm Water Point Source Discharges That Are Covered By This Permit

SOURCES COVERED BY THIS PERMIT

Facilities identified in 40 Code of Federal Regulation (CFR) §122.26(b)(14)(i -ix, xi) with storm water discharges. Construction activities, asphalt mix batch plants, concrete batch plants and Standard Industrial Classification code 14, *Mining and Quarrying of Nonmetallic Minerals, Except Fuels* are excluded from this permit. These activities are regulated under separate permits.

See Table 1: Sources Covered, pages 2-3, for more information on the CFR regulated industries covered by this permit.

Michael T. Llewelyn, Administrator
Water Quality Division

JULY 22, 1997
Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify, or operate storm water treatment and/or control facilities, and to discharge storm water to public waters in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

Unless authorized by another NPDES permit, all other direct and indirect discharges to public waters are prohibited.

TABLE 1: Sources Covered

Previous Permit Type	Sources Covered
1200-D	Facilities with the following primary Standard Industrial Classification codes: 21 Tobacco Products 22 Textile Mill Products 23 Apparel and Other Finished Products Made From Fabrics and Similar Material 27 Printing, Publishing and Allied Industries 4221 Farm Product Warehousing and Storage 4222 Refrigerated Warehousing and Storage 4225 General Warehousing and Storage Facilities with SIC codes 22, 23, 27, 4221, 4222, and 4225 are only required to apply for permit if storm water is exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery.
1200-F	Facilities with primary Standard Industrial Classification code 20 Food and Kindred Products. Facilities with this SIC code are only required to apply for permit if storm water is exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery.
1200-G	Landfills, land application sites and open dumps.
1200-H	Facilities with the following primary Standard Industrial Classification codes: 28 Chemicals and Allied Products (excluding 2874 Phosphate Fertilizer Manufacturing) 29 Petroleum Refining and Related Industries 30 Rubber and Miscellaneous Plastics Products 31 Leather and Leather Products 32 Stone, Clay, Glass, and Concrete Products 33 Primary Metal Industries and Steam Electric Power Generation including coal handling sites. Facilities with SIC codes 283, 285, 30, 31 (except 311), and 323 are only required to apply for permit if storm water is exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery.
1200-L	Facilities with the following primary Standard Industrial Classification codes: 34 Fabricated Metal Products, Except Machinery and Transportation Equipment 35 Industrial and Commercial Machinery and Computer Equipment 36 Electronic and Other Electrical Equipment and Components, Except Computer Equipment 37 Transportation Equipment 38 Measuring, Analyzing, and Controlling Instruments; Photographic, Medical and Optical Goods; Watches and Clocks 39 Miscellaneous Manufacturing Industries Facilities with SIC codes 34 (except 3441), 35, 36, 37 (except 373), 38, and 39 are only required to apply for permit if storm water is exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery.

TABLE 1: Sources Covered (cont.)

Previous Permit Type	Sources Covered
1200-M	Facilities with the following primary Standard Industrial Classification codes: 10 Metal Mining 12 Coal Mining 13 Oil and Gas Extraction
1200-P	Facilities with primary Standard Industrial Classification code 26 Paper and Allied Products. Facilities with SIC codes 265 and 267 are only required to apply for permit if storm water is exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery.
1200-R	Hazardous Waste Treatment, Storage and Disposal Facilities, and facilities with primary Standard Industrial Classification codes 5015 Motor Vehicle Parts, Used, and 5093 Scrap and Waste Materials.
1200-S	Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, recycling, and reclamation of municipal or domestic sewage (including land dedicated to the disposal of sewage sludge that are located within the confines of the facility) with the design flow capacity of 1.0 mgd or more, or required to have a pretreatment program under 40 CFR § 403.
1200-T	Facilities with the following primary Standard Industrial Classification codes that have vehicle maintenance shops (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or airport deicing operations: 40 Railroad Transportation 41 Local and Suburban Transit and Interurban Highway Passenger Transportation 42 Motor Freight Transportation and Warehousing (excluding 4221 Farm Product Warehousing and Storage, 4222 Refrigerated Warehousing and Storage, and 4225 General Warehousing and Storage) 43 United States Postal Service 44 Water Transportation 45 Transportation by Air 5171 Petroleum Bulk Stations and Terminals
1200-W	Facilities with the following primary Standard Industrial Classification codes: 24 Lumber and Wood Products, Except Furniture (excluding 2491 Wood Preserving and 2411 Logging) 25 Furniture and Fixtures Facilities with SIC codes 2434 and 25 are only required to apply for permit if storm water is exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery.

SCHEDULE A
STORM WATER POLLUTION CONTROL PLAN

1. **Preparation and Implementation of the Storm Water Pollution Control Plan (SWPCP)**
   a) The SWPCP shall be prepared by a person knowledgeable in storm water management and familiar with the facility.
   b) The SWPCP shall be signed in accordance with 40 CFR §122.22. Updates and revisions to the SWPCP shall also be signed in this manner. The SWPCP shall be signed as follows:
      i) For a Corporation - By a principal executive officer of at least the level of vice president;
      ii) For a Partnership or Sole Proprietorship - By a general partner or the proprietor, respectively; or
      iii) For a Municipality, State, Federal, or other Public Facility - By either a principal executive officer or ranking elected official.
   c) The SWPCP shall be prepared and implemented according to the time frames set forth in Schedule C.
   d) The SWPCP shall be kept current and updated as necessary to reflect any changes in facility operation.
   e) The SWPCP and updates to the SWPCP shall be submitted to the Department in accordance with Schedule B.3.
   f) A copy of the SWPCP shall be kept at the facility and made available upon request to government agencies responsible for storm water management in the permittee's area.

2. **Storm Water Pollution Control Plan Requirements**
   a) **Site Description** The SWPCP shall contain the following information:
      i) A description of the industrial activities conducted at the site. Include a description of the significant materials (see Schedule D.3, Definitions) that are stored, used, treated and/or disposed of in a manner that allows exposure to storm water. Also describe the methods of storage, usage, treatment and/or disposal.
      ii) A general location map showing the location of the site in relation to surrounding properties, transportation routes, surface waters and other relevant features.
      iii) A site map including the following:
         (1) drainage patterns
         (2) drainage and discharge structures
         (3) outline of the drainage area for each storm water outfall
         (4) paved areas and buildings within each drainage area
         (5) areas used for outdoor manufacturing, treatment, storage, and/or disposal of significant materials
         (6) existing structural control measures for reducing pollutants in storm water runoff
         (7) material loading and access areas
         (8) hazardous waste treatment, storage and disposal facilities
         (9) location of wells including waste injection wells, seepage pits, drywells, etc.
         (10) location of springs, wetlands and other surface water bodies.
      iv) Estimates of the amount of impervious surface area (including paved areas and building roofs) relative to the total area drained by each storm water outfall.
      v) For each area of the site where a reasonable potential exists for contributing pollutants to storm water runoff, identify the potential pollutants that could be present in storm water discharges.
      vi) The name(s) of the receiving water(s) for storm water drainage. If drainage is to a municipal storm sewer system, the name(s) of the ultimate receiving waters and the name of the municipality.

vii) Identification of the discharge outfall(s) and the point(s) where storm water monitoring will occur as required by Schedule B. If multiple discharge outfalls exist but will not all be monitored (as allowed in Schedule B.1.c), a description supporting this approach shall also be included.

b) *Site Controls* The permittee shall maintain existing controls and/or develop new controls appropriate for the site. The purpose of these controls is to eliminate or minimize the exposure of pollutants to storm water. In developing a control strategy, the SWPCP shall have the following minimum components. A description of each component shall be included in the SWPCP.

i) *Storm Water Best Management Practices* If technically and economically feasible, the following best management practices shall be employed at the site. A schedule for implementation of these practices shall be included in the SWPCP if the practice has not already been accomplished. This schedule must be consistent with the requirements for developing and implementing the SWPCP in Schedule C of the permit.

(1) Containment - All hazardous materials (see Schedule D.3, Definitions) shall be stored within berms or other secondary containment devices to prevent leaks and spills from contaminating storm water. If the use of berms or secondary containment devices is not possible, then hazardous materials shall be stored in areas that do not drain to the storm sewer system.

(2) Oil and Grease - Oil/Water separators, booms, skimmers or other methods shall be employed to eliminate or minimize oil and grease contamination of storm water discharges.

(3) Waste Chemicals and Material Disposal - Wastes shall be recycled or properly disposed of in a manner to eliminate or minimize exposure of pollutants to storm water. All waste contained in bins or dumpsters where there is a potential for drainage of storm water through the waste shall be covered to prevent exposure of storm water to these pollutants. Acceptable covers include, but are not limited to, storage of bins or dumpsters under roofed areas and use of lids or temporary covers such as tarps.

(4) Erosion and Sediment Control - Erosion control methods such as vegetating exposed areas, graveling or paving shall be employed to minimize erosion of soil at the site. Sediment control methods such as detention facilities, sediment control fences, vegetated filter strips, bioswales, or grassy swales shall be employed to minimize sediment loads in storm water discharges. For activities that involve land disturbance, the permittee shall contact the local municipality to determine if there are other applicable requirements.

(5) Debris Control - Screens, booms, settling ponds, or other methods shall be employed to eliminate or minimize debris in storm water discharges.

(6) Storm Water Diversion - Storm water shall be diverted away from fueling, manufacturing, treatment, storage, and disposal areas to prevent exposure of uncontaminated storm water to potential pollutants.

(7) Covering Activities - Fueling, manufacturing, treatment, storage, and disposal areas shall be covered to prevent exposure of storm water to potential pollutants. Acceptable covers include, but are not limited to, permanent structures such as roofs or buildings and temporary covers such as tarps.

(8) Housekeeping - Areas that may contribute pollutants to storm water shall be kept clean. Sweeping, prompt clean up of spills and leaks, and proper maintenance of vehicles shall be employed to eliminate or minimize exposure of storm water to pollutants.

ii) *Spill Prevention and Response Procedures* Methods to prevent spills along with clean-up and notification procedures shall be included in the SWPCP. These methods and procedures shall be made available to appropriate personnel. The required clean up material shall be on-site or readily available. Spills prevention plans required by other regulations may be substituted for this provision providing that storm water management concerns are adequately addressed.

iii) *Preventative Maintenance* A preventative maintenance program shall be implemented to ensure the effective operation of all storm water best management practices. At a minimum the program shall include:

(1) Monthly inspections of areas where potential spills of significant materials or industrial activities could impact storm water runoff.

(2) Monthly inspections of storm water control measures, structures, catch basins, and treatment facilities.

(3) Cleaning, maintenance and/or repair of all materials handling and storage areas and all storm water control measures, structures, catch basins, and treatment facilities as needed upon discovery.

iv) *Employee Education* An employee orientation and education program shall be developed and maintained to inform personnel of the components and goals of the SWPCP. The program shall also address spill response procedures and the necessity of good housekeeping practices. A schedule for employee education shall be included in the SWPCP.

c) **Record Keeping and Internal Reporting Procedures** The following information shall be recorded and maintained at the facility and provided to the Department and other government agencies upon request. This information does not need to be submitted as part of the SWPCP.

i) Inspection, maintenance, repair and education activities as required by the SWPCP.

ii) Spills or leaks of significant materials that impacted or had the potential to impact storm water or surface waters. Include the corrective actions to clean up the spill or leak as well as measures to prevent future problems of the same nature.

ADDITIONAL REQUIREMENTS

3. **Oregon Administrative Rule (OAR) 340-44-50, Waste Disposal Wells for Surface Drainage** OAR 340-44-50 requires that waste disposal wells for storm drainage only be used in those areas where there is an adequate confinement barrier or filtration medium between the well and an underground source of drinking water; and where construction of surface discharging storm sewers is not practical. In addition, this rule requires the following:

a) New storm drainage disposal wells shall be as shallow as possible but shall not exceed a depth of 100 feet.

b) Disposal wells shall be located at least 500 feet from domestic water wells.

c) Using a disposal well for agricultural drainage is prohibited.

d) Using a disposal well for surface drainage in areas where toxic chemicals or petroleum products are stored or handled is prohibited unless there is containment around the product area which will prevent spills and leaks from entering the well.

e) Any owner or operator of the disposal well shall have available a means of temporarily plugging or blocking the well in the event of an accident of spill.

f) Any area that is drained by a disposal well shall be kept clean of petroleum products and other organic or chemical wastes as much as practicable to minimize the degree of contamination of the storm water drainage.

4. **Oregon Administrative Rule 340-41-26(3)(a)(D), Surface Water Temperature Management Plan** Individual storm water discharges are not expected to cause a measurable increase in stream temperature. Compliance with this permit meets the requirement of OAR 340-41-26(3)(a)(D) to develop and implement a surface water temperature management plan. If it is determined that storm discharges in a particular basin are impacting a Total Maximum Daily Load for temperature, then permittees in this basin will be required to implement additional management practices to reduce the temperature of the discharges. These practices include, but are not limited to, increased vegetation to provide for shading, underground conveyance systems or detention vaults, and filter treatment systems to reduce detention times.

5. **Storm Water Only** This permit only regulates the discharge of storm water. It does not authorize the discharge or on-site disposal of process wastewater, wash water, boiler blowdown, cooling water, air conditioning condensate, deicing residues, or any other non-storm discharges associated with the facility.

   Any other wastewater discharge or disposal must be permitted in a separate permit. A separate Department permit may not be required if the wastewater is reused or recycled without discharge or disposal, or discharged to the sanitary sewer with approval from the local sanitary authority.

6. **Specific River Basin Requirements** The permittee shall comply with any Oregon Administrative Rule requirements for storm water management specific to the applicable river basin.

7. **Water Quality Standards** The ultimate goal for permittees is to comply with water quality standards in OAR 340-41. In instances where a storm water discharge adversely impacts water quality, the Department may require the facility to implement additional management practices, apply for an individual permit, or take other appropriate action.

CODE OF FEDERAL REGULATION STORM WATER DISCHARGE LIMITATIONS

8. The permittee with the following activities shall be in compliance with the applicable limitations at the time of permit assignment:

CFR Industry Category	Parameter	Limitation	
Cement manufacturing facilities for runoff from material storage piles (40 CFR §411)	pH Total Suspended Solids (TSS)	6.0 - 9.0 SU 50 mg/l	
Steam powered electric power generation facilities with coal handling and storage facilities (40 CFR §423)	TSS	50 mg/l, Daily Maximum	
Manufacturing of asphalt paving and roofing emulsions (40 CFR §443)	Oil & Grease	20 mg/l, Daily Maximum	15 mg/l, 30 Day Average
	pH	6.0 - 9.0 SU	

STORM WATER DISCHARGE BENCHMARKS

9. **Benchmarks** Benchmarks are guideline concentrations not limitations. They are designed to assist the permittee in determining if the implementation of their SWPCP is reducing pollutant concentrations to below levels of concern. For facilities that are subject to federal limitations, benchmarks apply to only those pollutants that are not limited by the federal regulations. The following benchmarks apply to each point source discharge of storm water associated with industrial activity:

Parameter	Benchmark
Total Copper	0.1 mg/l
Total Lead	0.4 mg/l
Total Zinc	0.6 mg/l
pH	5.5 - 9 S.U.
Total Suspended Solids	130 mg/l
Oil & Grease	10 mg/l
** E. coli	406 counts/100 ml
Floating Solids (associated with industrial activities)	No Visible Discharge
Oil & Grease Sheen	No Visible Sheen

** The benchmark for E. coli applies only to landfills, if septage and sewage biosolids are disposed at the site, and sewage treatment plants.

10. **Review of SWPCP** If benchmarks are not achieved, the permittee shall review their SWPCP within 60 days of receiving sampling results. The purpose of this review is to determine if the SWPCP is being followed and to identify any additional technically and economically feasible site controls that need to be implemented to further improve the quality of storm water discharges. These site controls include best management practices, spill prevention and response procedures, preventative maintenance, and employee education procedures as described in Schedule A.2.b.

a) **SWPCP Revision** Any newly identified site controls shall be implemented in a timely manner and incorporated into the SWPCP as an update. A new SWPCP is not required. If no additional site controls are identified, the permittee shall state as such in an update to the SWPCP.

b) **SWPCP Revision Submittal** Results of this review shall be submitted to the Department in accordance with Schedule B.3 and made available upon request to government agencies responsible for storm water management in the permittee's area.

c) **Background or Natural Conditions** If the permittee demonstrates that background or natural conditions not associated with industrial activities at the site cause an exceedance of a benchmark, then no further modifications to the SWPCP are required for that parameter. Upon successful demonstration of natural or background conditions through monitoring of the same storm event used to evaluate benchmarks the permittee would be eligible for the monitoring reduction as outlined in Schedule B.2.

SCHEDULE B
MONITORING AND REPORTING REQUIREMENTS

1. **Minimum Monitoring Requirements**

a) All permittees shall monitor storm water associated with industrial activity for the following:

GRAB SAMPLES OF STORM WATER	
Parameter	**Frequency**
Total Copper	Twice per Year
Total Lead	Twice per Year
Total Zinc	Twice per Year
pH	Twice per Year
Total Suspended Solids	Twice per Year
Oil & Grease	Twice per Year
**E. coli	Twice per Year

**The monitoring for E.coli applies only to landfills, if septage and sewage biosolids are disposed at the site, and sewage treatment plants.

VISUAL MONITORING OF STORM WATER	
Parameter	**Frequency**
Floating Solids (associated with industrial activities)	Once a Month (when discharging)
Oil & Grease Sheen	Once a Month (when discharging)

b) **Grab Samples** Grab samples that are representative of the discharge shall be taken at least 60 days apart. It is preferred, but not required, that one sample be collected in the fall and one in the spring. Compositing of samples from different drainage areas is not allowed.

c) **Multiple Point Source Discharges** The permittee may reduce the number of storm water monitoring points provided the outfalls have substantially identical effluents. Substantially identical effluents are discharges from drainage areas serving similar activities where the discharges are expected to be similar in composition. Outfalls serving areas with no exposure of storm water to industrial activities are not required to be monitored.

d) **Monitoring Location** All samples shall be taken at monitoring points specified in the SWPCP before the storm water joins or is diluted by any other wastestream, body of water or substance.

e) **No Exposure** If there is no exposure of storm water to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery at the site, monitoring is not required. The permittee shall submit an annual statement certifying as such in lieu of monitoring (refer to Schedule B.3.b). If exposure cannot be prevented, the permittee shall comply with Schedule B.

2. **Monitoring Reduction**
   a) **Visual Observations** There is no reduction allowed of the required visual observations.

   b) **Grab Samples** The permittee is not required to conduct sampling if the benchmarks specified in Schedule A.9 are met, or if the exceedance is due to natural or background conditions for at least four consecutive storm water monitoring events over 24 continuous months. Note that there is no reduction in monitoring allowed for facilities subject to limitations under CFR (Schedule A.8).
      i) Results from sampling events cannot be averaged to meet the benchmarks.
      ii) Monitoring waivers may be allowed for individual parameters.
      iii) Parameters in exceedance or not previously sampled shall be monitored as required in Schedule B.1 until the monitoring waiver condition above is met.
      iv) Monitoring data from the previous permit period may be used to meet the waiver requirement. This data shall be evaluated against the benchmarks specified in this permit.
      v) Monitoring data from the same storm event shall be used to demonstrate that background or natural conditions not associated with industrial activities at the site are contributing to the exceedance of a benchmark.
      vi) The permittee shall submit written notification to the Department when exercising the monitoring waiver condition (refer to Schedule B.3.c).

   c) **Reinstatement of Monitoring Requirements**
      i) The permittee shall conduct monitoring as specified in Schedule B.1 if changes to site conditions are expected to impact storm water discharge characteristics.
      ii) The Department may reinstate monitoring requirements as specified in Schedule B.1 if prior monitoring efforts were improper or results were incorrect.
      iii) Monitoring may also be reinstated if future sampling efforts indicate benchmarks are being exceeded.

3. **Reporting Requirements** The permittee shall submit the following to the appropriate DEQ regional office:
   a) **Monitoring Data** The permittee shall submit by July 15 of each year grab sampling and visual monitoring data for the previous monitoring period (July 1- June 30). If there was insufficient rainfall to collect samples, the permittee shall notify the Department by July 15 of each year.

   b) **No Exposure Certification** The permittee shall submit an annual certification by July 15 of each year if monitoring is not required due to no exposure of storm water to industrial activities. The certification shall state that site conditions have been evaluated and the facility meets the requirements of Schedule B.1.e.

   c) **Monitoring Reduction Notification** The permittee shall submit written notification when exercising the monitoring reduction condition in Schedule B.2.b.

   d) **SWPCP Update/Completion** The permittee shall prepare or update the SWPCP in accordance with Schedule C of the permit. The permittee shall submit an updated or completed SWPCP within 14 days after completion.

   e) **SWPCP Revision** The permittee shall submit any revisions to the SWPCP required by Schedule A.10 within 14 days after the SWPCP is revised. If the Department does not review and comment on the revised SWPCP within 30 days, the permittee shall implement the revisions as proposed.

SCHEDULE C
COMPLIANCE CONDITIONS AND SCHEDULES

1. **Existing Permittee** (for a facility with an NPDES storm water discharge permit assigned prior to September 30, 1996):

   a) Not later than 90 days after receiving this permit, the existing permittee shall revise and begin implementation of their SWPCP to meet any new permit requirements.

   b) Except for site controls that require capital improvements (see Schedule D.3, Definitions), the SWPCP shall be implemented within 90 days after revision of SWPCP. Site control activities that require capital improvements shall be completed in accordance with the schedule set forth in the SWPCP.

2. **New Permittee with Existing Facility** (for a facility operating prior to September 30, 1996, without an NPDES storm water discharge permit):

   a) Not later than 90 days after receiving this permit, the new permittee shall prepare and begin implementation of their SWPCP.

   b) Except for site controls that require capital improvements (see Schedule D.3, Definitions), the SWPCP shall be implemented within 90 days after completion of SWPCP. Site control activities that require capital improvements shall be completed in accordance with the schedule set forth in the SWPCP.

3. **New Facility** (for a facility beginning operation after September 30, 1996):

   a) Prior to starting operations, a new facility shall prepare and begin implementation of their SWPCP.

   b) Except for site controls that require capital improvements (see Schedule D.3, Definitions), the SWPCP shall be implemented within 90 days after beginning operation. Site control activities that require capital improvements shall be completed in accordance with the schedule set forth in the SWPCP.

4. **New Permittee Discharging to Clackamas River, McKenzie River above Hayden Bridge (River Mile 15) or North Santiam River.** Not later than 180 days after receiving this permit, new permittees discharging to Clackamas River, McKenzie River above Hayden Bridge (river mile 15) or North Santiam River shall submit to the Department a monitoring and water quality evaluation program. This program shall be effective in evaluating the in-stream impacts of the discharge as required by OAR 340-41-470. Within 30 days after Department approval, the permittee shall implement the monitoring and water quality evaluation program. New permittees are defined to include potential or existing dischargers that did not have a permit, and existing dischargers that have a permit but request an increased load limitation.

SCHEDULE D
SPECIAL CONDITIONS

1. **Releases in Excess of Reportable Quantities.** This permit does not relieve the permittee of the reporting requirements of 40 CFR §117 Determination of Reportable Quantities for Hazardous Substances and 40 CFR §302 Designation, Reportable Quantities, and Notification.

2. **Availability of SWPCP and Monitoring Data.** The Storm Water Pollution Control Plan and/or storm water monitoring data shall be made available to government agencies responsible for storm water management in the permittee's area.

3. **Definitions**

   a) *Capital Improvements* means the following improvements that require capital expenditures:
      i) Treatment best management practices including but not limited to settling basins, oil/water separation equipment, catch basins, grassy swales, and detention/retention basins.
      ii) Manufacturing modifications that incur capital expenditures, including process changes for reduction of pollutants or wastes at the source.
      iii) Concrete pads, dikes and conveyance or pumping systems utilized for collection and transfer of storm water to treatment systems.
      iv) Roofs and appropriate covers for manufacturing areas.

   b) *Hazardous Materials* as defined in 40 CFR §302 Designation, Reportable Quantities, and Notification.

   c) *Material Handling Activities* include the storage, loading and unloading, transportation or conveyance of raw material, intermediate product, finished product, by-product or waste product.

   d) *Point Source* means a discharge from any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, or conduit.

   e) *Significant Materials* includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical that a facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ash, slag, and sludge that have the potential to be released with storm water discharges.

SCHEDULE F
NPDES GENERAL CONDITIONS

SECTION A. STANDARD CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and is grounds for enforcement action; for permit termination, suspension, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations

Oregon Law (ORS 468.140) allows the Director to impose civil penalties up to $10,000 per day for violation of a term, condition, or requirement of a permit.

Under ORS 468.943, unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to $25,000 or by imprisonment for not more than one year, or by both. Each day on which a violation occurs or continues is a separately punishable offense.

Under ORS 468.946, a person who knowingly discharges, places or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state, is subject to a Class B felony punishable by a fine not to exceed $200,000 and up to 10 years in prison.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee shall correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application shall be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions

This permit may be modified, suspended, revoked and reissued, or terminated for cause including, but not limited to, the following:

a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;
b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts; or
c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the permittee for a permit modification or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants

The permittee shall comply with any applicable effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

8. Permit References

Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities

a. Definitions
(1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not include nonuse of singular or multiple units or processes of a treatment works when the nonuse is insignificant to the quality and/or quantity of the effluent produced by the treatment works. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation.
(2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.
(1) Bypass is prohibited unless:
(a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
(c) The permittee submitted notices and requests as required under General Condition B.3.c.
(2) The Director may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Director determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.
(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior written notice, if possible at least ten days before the date of the bypass.
(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
(1) An upset occurred and that the permittee can identify the causes(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
(4) The permittee complied with any remedial measures required under General Condition A.3 hereof.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Event

For purposes of this permit, A Single Operational Event which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation. A single operational event is an exceptional incident which causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational event does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational event is a violation.

6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

a. Definitions
   (1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
   (2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
   (3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.

b. Prohibition of overflows. Overflows are prohibited unless:
   (1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
   (2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and
   (3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.

c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.

d. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

7. Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee shall take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

8. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling

Sampling and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than $\pm$ 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

4. Penalties of Tampering

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than $20,000 per day of violation, or by imprisonment of not more than four years or both.

5. Reporting of Monitoring Results

Monitoring results shall be summarized each month on a Discharge Monitoring Report form approved by the Department. The reports shall be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value shall be recorded unless otherwise specified in this permit.

7. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.

8. Retention of Records

Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records of all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

9. Records Contents

Records of monitoring information shall include:

a. The date, exact place, time and methods of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

10. Inspection and Entry

The permittee shall allow the Director, or an authorized representative upon the presentation of credentials to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall comply with Oregon Administrative Rules (OAR) 340, Division 52, "Review of Plans and Specifications". Except where exempted under OAR 340-52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers shall be commenced until the plans and specifications are submitted to and approved by the Department. The permittee shall give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit shall be transferred to a third party without prior written approval from the Director. The permittee shall notify the Department when a transfer of property interest takes place.

4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office shall be called. Outside of normal business hours, the Department shall be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. If the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, and in which case if the original reporting notice was oral, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days. The written submission shall contain:

a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected;
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
e. Public notification steps taken, pursuant to General Condition B.7.

The following shall be included as information which must be reported within 24 hours under this paragraph:

a. Any unanticipated bypass which exceeds any effluent limitation in this permit.
b. Any upset which exceeds any effluent limitation in this permit.
c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports shall contain:

a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected; and
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information.

8. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22.

9. Falsification of Reports

Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed $100,000 per violation and up to 5 years in prison.

10. Changes to Indirect Dischargers - **[Applicable to Publicly Owned Treatment Works (POTW) only]**

The permittee must provide adequate notice to the Department of the following:

a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants and;

b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For the purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

11. Changes to Discharges of Toxic Pollutant - **[Applicable to existing manufacturing, commercial, mining, and silvicultural dischargers only]**

The permittee must notify the Department as soon as they know or have reason to believe of the following:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:
   (1) One hundred micrograms per liter (100 µg/l);
   (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
   (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
   (4) The level established by the Department in accordance with 40 CFR 122.44(f).

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
   (1) Five hundred micrograms per liter (500 µg/l);
   (2) One milligram per liter (1 mg/l) for antimony;
   (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
   (4) The level established by the Department in accordance with 40 CFR 122.44(f).

SECTION E. DEFINITIONS

1. BOD means five-day biochemical oxygen demand.
2. TSS means total suspended solids.
3. mg/l means milligrams per liter.
4. kg means kilograms.
5. m^3/d means cubic meters per day.
6. MGD means million gallons per day.
7. Composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
8. FC means fecal coliform bacteria.
9. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-41.
10. CBOD means five day carbonaceous biochemical oxygen demand.
11. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
12. Quarter means January through March, April through June, July through September, or October through December.
13. Month means calendar month.
14. Week means a calendar week of Sunday through Saturday.
15. Total residual chlorine means combined chlorine forms plus free residual chlorine.
16. The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
17. POTW means a publicly owned treatment works.

APPENDIX B:
SCRAP ACCEPTANCE POLICY

SCRAP ACCEPTANCE

GUIDELINES

SCHNITZER STEEL PRODUCTS CO.
12005 N. Burgard Rd. (97203)
PO Box 10047
Portland, OR 97296-0047
(503)286-5771

SCHN00204603

Dear Customers:

This memo clarifies our policies for accepting recyclable metals. These requirements reflect our commitment to responsible environmental management. Please be aware that many of our policies are controlled by state and federal environmental regulations which apply both to us and to our customers.

This list is not inclusive; other items not listed may be inappropriate for recycling as scrap metal. Read this carefully and contact Tim Todd in our environmental department at (503) 286-6944 if you have questions about specific items. **Remember that any load can be rejected at your cost if these guidelines are not followed.**

The following materials WILL NOT be accepted at our facility:

- Refrigerants (including CFCs and HCFCs) in refrigerators and air conditioners (Clean Air Act Sections 608 (b)(1) and 608 (c)). Please note that these regulations prohibit any release of refrigerants into the atmosphere, and require persons handling them to follow specific procedures. In addition, suppliers MUST sign a statement certifying that all refrigerant has been properly removed (40CFR 82).
- Asbestos or asbestos containing materials such as pipe insulation, and surfacing material commonly found on I-beams and other building structures (40 CFR 61.150).
- Oils, gasoline, other petroleum products, and antifreeze. This includes hydraulic fluids, gear oil, and grease. Cars and other equipment must be drained of all fluids and generally free of oil and grease.
- Lead-acid batteries or any battery parts, including automobile batteries (40 CFR 273).
- Items that contain or have contained PCB's, including capacitors in older appliances, light ballasts, and electrical transformers or transformer components (TSCA and 40 CFR 258 and 261).
- Automobile airbags, which contain sodium azide (40 CFR 261).
- Paint cans or other paint containers.
- Fluorescent lights, mercury vapor lights, associated fixtures, or ballasts.
- Any material containing hazardous or toxic substances.
- Military scrap of any kind, unless approved in advance.
- Explosives or explosive materials.
- Tires, wood, yard debris, concrete, asphalt, glass, garbage, rubber or other non-metallic materials.
- Any radioactive materials.

The following items will be accepted ONLY if prepared as described:

- Appliances must have all electrical components removed.
- Engine oil filters must be thoroughly drained AND attached to motor blocks.
- Drums, barrels, and other containers must be thoroughly cleaned and open for inspection. Gas cylinders must be cut in half.
- Compressors must be removed from appliances, drained of all fluids, and cut in half.
- Cable and wire must be cut in 4 foot lengths. Metal banding must be cut in lengths of 1 foot or less. Chain link fencing must be in sections no larger than 18 feet by 4 feet.
- Aerosol cans must be empty, plastic caps removed, and punctured or crushed.

APPENDIX C:
SPILL PREVENTION, CONTROL, AND COUNTERMEASURES (SPCC) PLAN

INTERNATIONAL TERMINALS
12005 N. BURGARD ROAD
PORTLAND, OREGON

SPILL PREVENTION CONTROL AND COUNTER MEASURES (SPCC) PLAN

A COMPLETE COPY OF THIS SPCC PLAN AND ITS ATTACHMENTS MUST BE MAINTAINED AT THE FACILITY AND MADE AVAILABLE TO THE EPA REGIONAL ADMINISTRATOR OR HIS AUTHORIZED REPRESENTATIVE DURING NORMAL WORKING HOURS

AN EMERGENCY RESPONSE SHEET IS LOCATED IN APPENDIX B

Prepared by

PBS ENVIRONMENTAL
1220 S.W. Morrison St.
Portland, OR 97205
(503) 248-1939

PBS Project Number
12814.00

February 1999

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PLAN APPROVAL

ENGINEER: PBS ENVIRONMENTAL

By means of examination of the International Terminals facility, and being familiar with the requirements of 40 CFR 112, I attest that this SPCC Plan as been prepared in accordance with good engineering practices.

Plan approved by: _____
Guy M. Neal, P.E.

Date: 2-1-99

OWNER/OPERATOR: INTERNATIONAL TERMINALS

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Plan approved by: _____
Jim Jakubiak, R.G.

Date: 2-15-99

1.0 PRE-EMERGENCY PLANNING

1.1 Purpose of Spill Prevention Control and Countermeasures Plan

This Spill Prevention Control and Countermeasures Plan (SPCC) describes the specific responsibilities, actions and operating procedures required or considered necessary for (1) preventing oil spills, and; (2) mitigating the extent of a spill. Requirements for inspection, training and record keeping are also addressed. The intent of this SPCC is to comply with the requirements of 40 CFR 112 and OAR 340-108, as it relates to oil spills only. Reporting requirements, cleanup standards, and liability relating to spills or releases of oil (or hazardous materials) are required by Oregon Administrative Rules (OAR) 340-108.

Work and environmental conditions at this site may change over time; as such the SPCC is dynamic and may be modified to encompass changes in work conditions or other unanticipated events and hazards.

The following reference sources were used in the preparation of this SPCC:

40 CFR 112.7, Guidelines for the preparation and implementation of a Spill Prevention Control and Countermeasure Plan

29 CFR 1910.120, Hazardous Waste Operations & Emergency Response

40 CFR 302, Designation, Reportable Quantities and Notification

OAR 340-108, Oil and Hazardous Material Spills and Releases

The Chemical Hazard Response Information System (CHRISTINE), produced by the U.S. Coast Guard

The 1996 North American Emergency Response Guidebook

1.2 Introduction

An SPCC is required under Code of Federal Regulations 40 CFR Part 112.3 for "owners or operators of non-transportation-related onshore and offshore facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing or consuming oil and oil products, and which, due to their location, could reasonably be expected to discharge oil in harmful quantities into or upon the navigable waters of the United States or adjoining shorelines. Facilities that are subject to this part are those that i) have an underground buried storage capacity of the facility is 42,000 gallons or more of oil, or ii) the storage capacity, which is not buried, of the facility is 1,320 gallon or mor of oil, or iii) the storage capacity, which is not buried, of a single container is 660 gallons or more of oil.

International Terminals (IT) is an onshore facility that is engaged in the storage of up to 20,000 gallons of oil in aboveground storage tanks (ASTs), underground storage tanks (USTs), transformers, drums and equipment.

Preparation of the SPCC Plan for this facility is to be prepared in accordance with 40 CFR 112.7.

1.3 Implementation of the SPCC Plan

The following scenarios shall require implementation of the SPCC and its requirements:

- A spill or material release with the potential to release flammable, hazardous or toxic liquids/vapors to soil, surface water or groundwater.
- A spill or material release that is contained on-site, but has the potential for groundwater contamination.
- Any incident, that in the opinion of the Environmental Administrator, requires implementation of the SPCC.

1.4 Statement of Commitment

The International Terminals staff are committed to utilizing any and all necessary manpower, equipment and materials to expeditiously control and remove any quantity of oil or hazardous material that may reasonably be considered harmful to human health or the environment. If it is determined that facility staff are incapable of performing appropriate cleanup activities, the Environmental Administrator and/or environmental staff shall make a concerted effort to immediately contact professionals who are capable of adequately performing cleanup activities.

This SPCC document is to be used in conjunction with the provisions of 40 CFR 112. These regulations require that if reasonable engineering controls cannot be constructed, the facility shall produce a 'strong' oil spill contingency plan following the provisions of 40 CFR 109.

2.0 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATION

Environmental Administrator ..... Jim Jakubiak
Office ..... Extension 6976
Pager ..... (503) 271-0151
Home ..... (360) 573-9515

2.1 Personnel Roles

During situations involving the spillage of oil products, employees and subcontractors are to report immediately to the Environmental Administrator (designated above, or the senior person present). The Environmental Administrator is to provide security of the affected area, determine if a reportable quantity of an oil product has been released and/or if the requirements of the SPCC are to be implemented. If reportable quantities of an oil product have been released, then this individual shall make necessary spill notification to the Oregon Emergency Management Division.

A spill or material release that meets or exceeds reportable quantity limits, as detailed in OAR 340-108-0010. Pertinent items include:

- If spilled into waters of the state, or escape into waters of the state is likely, any quantity of oil that would produce a visible oily slick, oily solids, or coat aquatic life, habitat or property with oil.
- If spilled on the surface of the land, any quantity of oil over one barrel (42 gallons).

2.2 Communication

The responsible individual at the time of an oil product spill or discovery of an unknown and/or potentially hazardous material shall immediately notify the Environmental Administrator of the situation. This individual shall be equipped with a two-way radio or have other means to make the necessary notification. The Environmental Administrator shall in-turn make necessary notifications to other facility personnel. In the event that an evacuation greater than the immediate affected area is required, the Environmental Administrator or other authorized person shall personally direct employees to a designated meeting location.

3.0 FACILITY DESCRIPTION AND LOCATION

3.1 Facility Location

The International Terminals property is located at 12005 N. Burgard Road, Portland, Oregon. A Site Location Map for the facility is presented in Figure 1; the Site Plan is in Figure 2.

3.2 Description of Facility Site

The International Terminals property occupies approximately 3,500 lineal feet (0.66 miles) of riverbank along the eastside of the Willamette River. The ground surface at the site gently slopes to the north/northwest with elevations on the order of 30 feet above mean sea level (MSL). According to water well logs on file at the Oregon Water Resource Department, the general subsurface description for International Terminals fluvial deposits of sand and gravel up to approximately 175 feet below ground surface. Groundwater is unconfined to the Troutdale Formation, at depth.

Two different operations occur at the International Terminals site. Schnitzer Steel Industries manages a scrap metal processing operation. Bulk quantities of scrap metal are shredded and/or sheared into small pieces of metal for shipment to offsite metal recycling facilities. International Terminals operates a transfer operation onsite, including bulk cargo handling from the shipping/port area located onsite. Oil products are currently stored in bulk quantities throughout the International Terminals site. Table 3-1 identifies the current storage. The numbered locations correspond to the facility Site Plan (Figure 2).

Table 3-1: Oil Storage at International Terminals

Location	Storage Type	Size (gallons)/Contents
#1) Building B	AST	250/Diesel
#2) Building B	Transformers	210 (6-35 gallon containers)/Dielectric Fluid
#3) Aboveground Oil/Fuel Storage Area	AST	500/Recyclable Oil
	AST	250/Recyclable Oil
	AST	500/Hydraulic Oil (Mobile DTE 25)
	AST	500/Motor Oil (Mobile 1300 Super-15W-40)
	AST	500/Hydraulic Oil (Mobiletrans HD 30)
	AST	250/Motor Oil
	Drums	770 (14 total of 55 gallon drums)/Misc. Oil
	Drums	120 (4 total of 30 gallon drums)/Misc. Oil
#4) Shear	Equipment	5,000/Hydraulic Oil
	AST	250/Lubricant Oil
	AST	480/Oil
#5) Shear Transformer/Diesel AST	AST	250/Diesel
	Transformer	730/Dielectric Fluid
#6) Shredder	Transformer	1000/Dielectric Fluid
	AST	305/Pump Hydraulic Oil
	Drum	110 (2 total of 55 gallon drums)/Motor Oil
#7) Shredder Transformers	Transformer	6,495 (3 total of 2,165 gallons)/Dielectric Fluid

3.3 Recent Spill Events

According to historical information, no spill events from underground or aboveground storage tanks have been reported within the last 12 months. On October 14, 1998, an unrecoverable amount of hydraulic oil, as determined by the U.S. Coast Guard, was released into the Willamette River. The released hydraulic oil was a result of a broken hydraulic line on a front-end loader.

If a spill occurs in the future, the SPCC shall be amended to include a written description of each such spill, corrective action taken and plans for preventing recurrence.

4.0 IN-PLACE CONTAINMENT CONTROL MEASURES/PREDICTIONS OF SPILL CONDITIONS

As described in 40 CFR 112.7 (e), appropriate containment and/or diversionary structures or equipment to prevent discharged oil from reaching navigable waters are required, as practicable. The following section describes the existing containment control measures and the predicted conditions of a spill.

4.1 Aboveground Storage Tanks

In the event of an aboveground storage tank release, there is potential for spilled materials to permeate into the subsurface or flow into the stormwater treatment system. Each aboveground storage location for International Terminals is discussed below.

4.1.1 (#1) Diesel AST

Concrete protective barriers have been placed around this AST. These barriers will act to detain some portion of spilled fuel. The diesel AST rests on a flat concrete floor, with no stormwater catchbasins or floor drains within the immediate vicinity. An oil spill kit has been placed within approximately50 feet of this AST. In the event of a spill, fluids will likely remain within the immediate area of the tank for cleanup with the nearby spill kit.

4.1.2 (#2) Building B Transformers

Both transformer locations within Building B have been protected with secondary containment, in the form of concrete-block structures built around the dielectric vessels. The transformers have each been set on a concrete pad, of which there is no apparent deterioration. In the event of a spill, all materials will likely remain within the immediate area of the vessels. There are no catchbasins or floor drains within the immediate vicinity.

4.1.3 (#3) Aboveground Storage Area

At this time, there are approximately 2,500 gallons of oil products stored in six ASTs at this location, as well as numerous drums of oil products. The ASTs and drums reside within a secondary containment spill pad. The capacity of this secondary containment is approximately 1,683 gallons. The local ground surface slopes to the north, towards a stormwater catchbasin located approximately 45 feet north. An oil spill kit is located approximately 350 feet east of this location.

4.1.4 (#4) Shear

Within the Shear building there are two oil-containing vessels. The shear pump reservoir contains approximately 4,500 gallons of hydraulic oil. Around the reservoir is a secondary containment weir and sump trench to catch leaking oil. According to International Terminal staff, this sump is pumped out as necessary by an environmental contractor and disposed offsite. The capacity of this sump is approximately 2,900 gallons. Near the reservoir is a reserve oil AST of 250 gallons. Facility staff utilize a spill pan when operating this tank. On the roof of the Shear building is a 480 gallon reserve oil tank.

The Shear building resides on an elevated concrete pad and has sheet metal walls. The ground around the Shear building is a combination of asphalt and native soils, and slopes towards the west. A significant spill from any of the oil-containing vessels at the Shear building would be expected to collect at the west side of the Shear, and permeate into the native soils of the site.

4.1.5 (#5) Shear Transformer/Diesel AST

The Shear Transformer and Reserve ASTs are located directly south of the shear. The ground is asphalt, and the transformer is mounted on a concrete pad. The immediate area slopes towards a stormwater catchbasin located approximately 300 feet west of the transformer. A spill of dielectric fluid from the transformer is expected to be insignificant, with minimal potential for contact with nearby surface waters.

Three (3) reserve ASTs are also located in this area. At the time of inspection, the ASTs were not in use.

4.1.6 (#6) Shredder

A 1,000 gallon transformer is located on the north side of the shredder building. The transformer is mounted on a concrete pad, and protected by a chain link fence. There are no stormwater catchbasins or floor drains within the immediate vicinity. An oil spill kit is located approximately 150 feet south of the transformer. The ground surface near this transformer is a combination of impervious surface (concrete) and native soil. A spill of dielectric fluid would be expected to remain within the immediate vicinity of the transformer, and possibly permeate into the native soil.

Within the shredder building is a 305 gallon AST, containing pump hydraulic oil. Near the shredder is a maintenance shed, containing 2-55 gallon drums of motor oil.

4.1.7 (#7) Shredder Transformers

At the southwest corner of the International Terminals property are three (3) transformers. According to International Terminals documentation, each of these transformers holds 2,165 gallons of dielectric fluid. The transformers have been mounted on concrete pads. Secondary containment curbing and a sump have been constructed to contain any spills. A manually operated pump rests in the sump and is operated only to remove contained stormwater. The capacity of the secondary containment curbing is approximately 13,466 gallons. A spill of dielectric fluid from these transformers would be adequately detained by the existing secondary containment.

5.0 PREVENTION STANDARDS

5.1 Work Practices

The Environmental Administrator and environmental staff shall require the following measures be implemented to reduce the likelihood of: (1) a spill occurring; (2) of contaminated soils or liquids being contacted by unauthorized employees, or; (3) any spills that may result in an offsite release via surface runoff or underground piping.

- Any fueling and routine maintenance of equipment shall be accomplished utilizing containment pans and pumps to recover engine fluids during service. Spill kits, at a minimum, shall consist of absorbent pads and booms. Any spilled oil, engine lubricants, etc., shall be cleaned with absorbent materials; washing of oils into sanitary sewer shall be eliminated.

- Store spill protection materials in accessible locations near applicable areas. Items such as sand bags, sand, Had-sorb pillows, etc.

- All fuel oil valves, process units and electrical transformers are to be periodically inspected for leaks. If staining or a spill is observed, record observations. Periodic inspections should be performed by the responsible person for the respective location. Any observed leaks shall be documented and reported to the Environmental Administrator within 24 hours of discovery.

- When not in use, equipment will be parked away from stormwater catch basins or drainage channels where runoff could easily occur. When feasible, equipment will be parked on an impervious surface.

- When temporary or mobile ASTs are in use, temporary secondary containment (e.g., oil booms) shall be placed around the tank to contain an spills. Use practical discretion to determine the appropriate distance at which to place temporary containment so as to provide maximum area of fluid containment.

- Store empty and enclosed drums in readily accessible locations of secondary containment curbing. These drums should be designated specifically for transfer of spilled oils from the secondary containment.

5.2 Recommended Engineering Controls

5.2.1 General

Specific recommended engineering controls are made based on a reasonable likelihood that spilled oil products will contact nearby surface waters of the Willamette River.

At the present time, the International Terminals facility is preparing a plan to have upaved areas of the site paved, with the intention of constructing a completely impervious area for the whole site. The following recommended engineering controls, including the construction of containment curbing, should be included in the project design.

5.2.2 Aboveground Storage Tanks

Recommended engineering controls for ASTs include secondary containment. Secondary containment may be inherent in the tank design, or may be constructed in the form of spill pads, curbing, and spill sumps. Specific areas of concern are discussed below:

(a) (#3) Aboveground Storage Area

The existing secondary containment is of adequate capacity to detain a worst-case oil spill. It is recommended that bollards be installed around this area to reduce the potential for vehicle impact to the tanks.

(b) (#4) Shear

The quantity of stored oil in the shear building is approximately 5,730 gallons. The secondary containment for the shear equipment has a capacity of 2,900 gallons. If feasible, a secondary curbing should be constructed around the shear building to contain this quantity of oil. The design of the curbing should consider the impervious surface area required to contain 5,730 gallons of oil (i.e., six-inch curb surrounding approximately 1,550 square feet of impervious surface around the Shear). This engineering control may be performed during upcoming paving projects onsite.

(c) (#7) Shredder

During upcoming paving projects, the surface area within the immediate vicinity of the transformer should be completely paved.

5.3 Training

Instruction in the operation and maintenance of equipment to prevent the discharge of oil and applicable pollution control laws, rules and regulations is required for all operating personnel. Training is to occur at intervals frequent enough to assure adequate understanding of this SPCC. Training shall include a description of known spill events or failures, malfunctioning components and recently developed precautionary measures. A record of persons receiving initial and refresher training shall be maintained by the Environmental Administrator or safety trainer.

6.0 SITE SECURITY AND CONTROL

The following section recommends measures and procedures for maintaining site security. Site security is an essential component in the implementation of the SPCC.

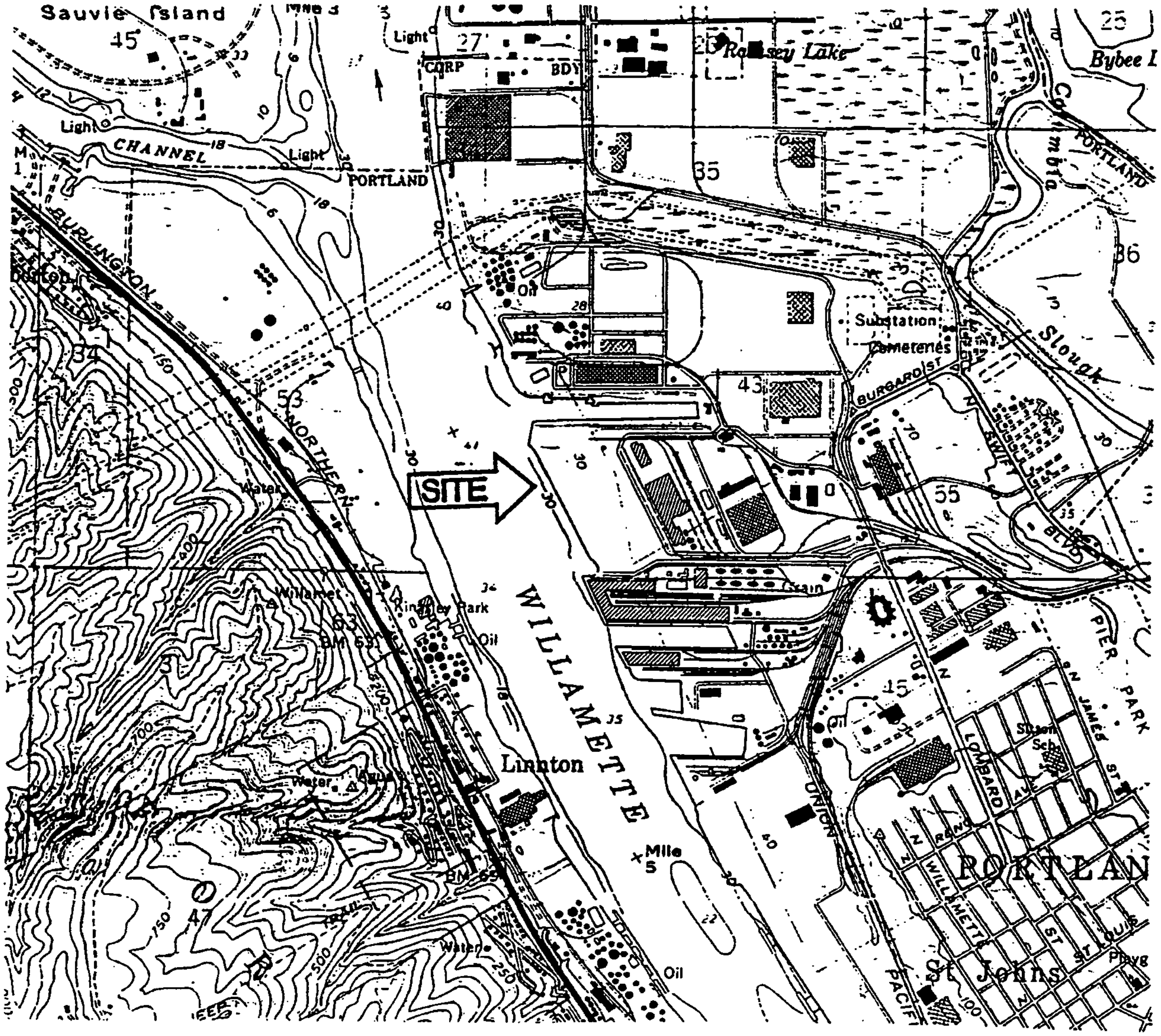
- Ensure all valves that will permit direct outward flow of the tank's content to the surface are securely set (locked if practical) in the closed position when out of operation.
- Ensure adequate site lighting is installed to discover spills and prevent spills occurring through acts of vandalism during hours of darkness.
- Equipment should be parked in a secured area to prevent vandalism.

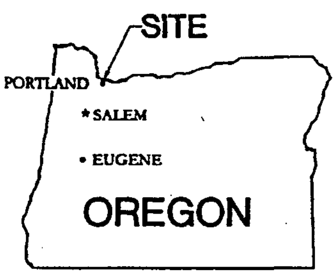
7.0 PLAN REVIEW, AMENDMENT AND CERTIFICATION

This SPCC is to be reviewed and evaluated once every three years by the Environmental Administrator or the environmental staff. If required, the SPCC is to be amended within six months of the review.

Amendment of the SPCC occurs whenever there is a change in facility design, construction, operation or maintenance procedure that affects the facility's potential for a spill or release. The SPCC is to be amended within six months of the change.

All amendments to the SPCC will be reviewed and certified by a Professional Engineer. Through this certification, the engineer attests that the SPCC has been prepared in accordance with good engineering practices.





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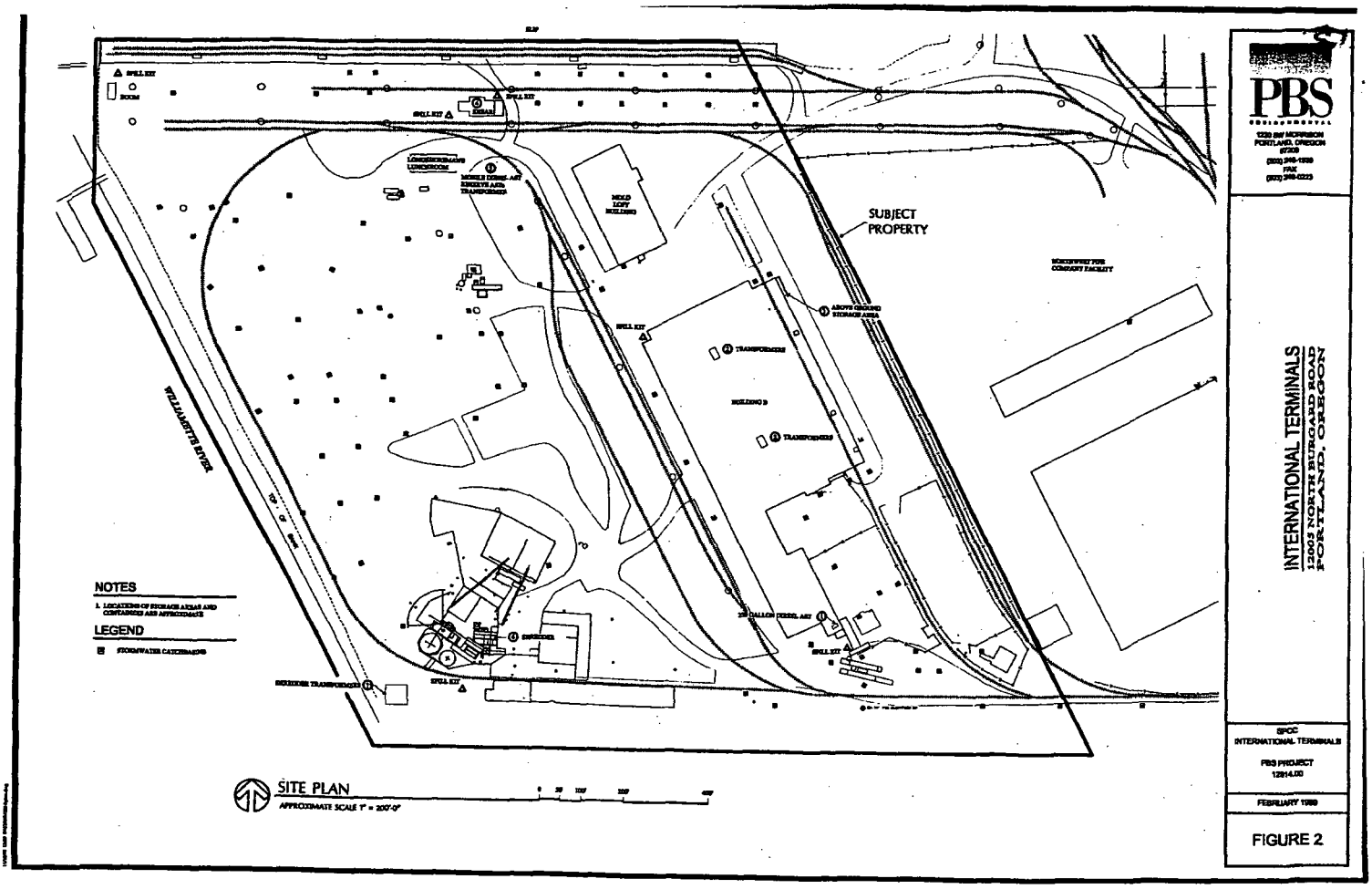
SOURCE: USGS LINNTON QUADRANGLE, ORE. 1961
PHOTOREVISED 1970 AND 1975.

12814.00 FEB 1999	SITE LOCATION MAP 12005 N BURGARD ROAD PORTLAND, OREGON	[redacted] PBS 1220 SW MORRISON PORTLAND, OREGON 97205 (503) 248-1939 FAX (503) 248-0223	FIGURE 1

SCHN00204619



SCHN00204620

APPENDIX A: SITE PHOTOGRAPHS

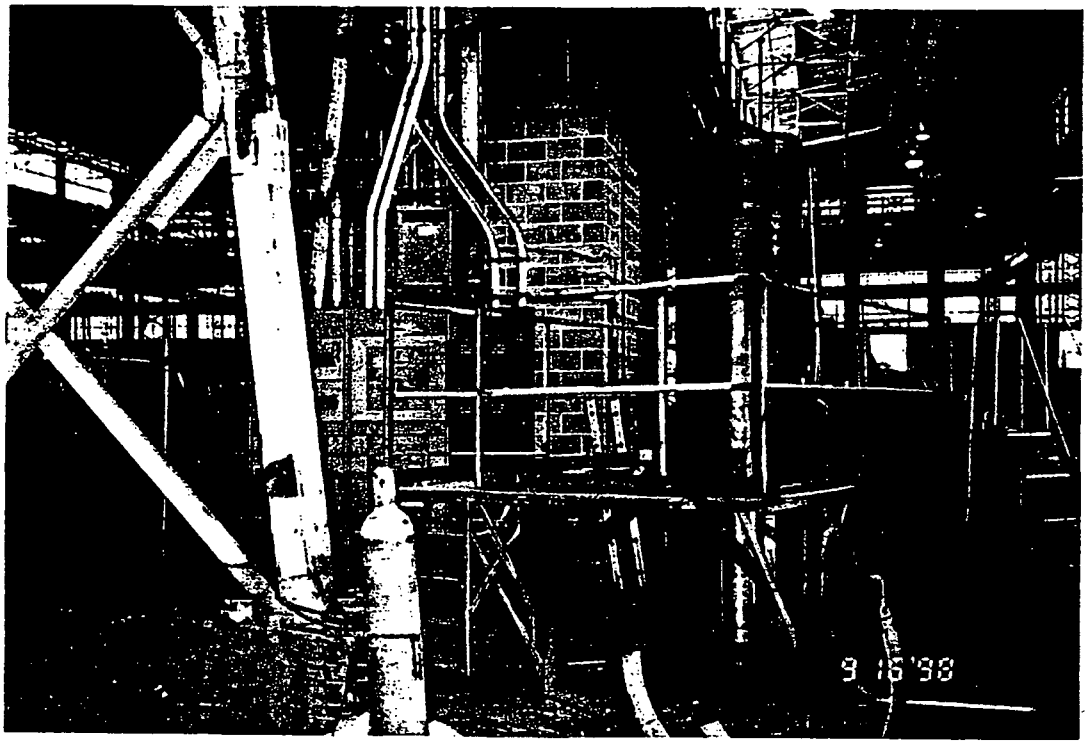


PHOTO 1: (#2) BUILDING B TRANSFORMER

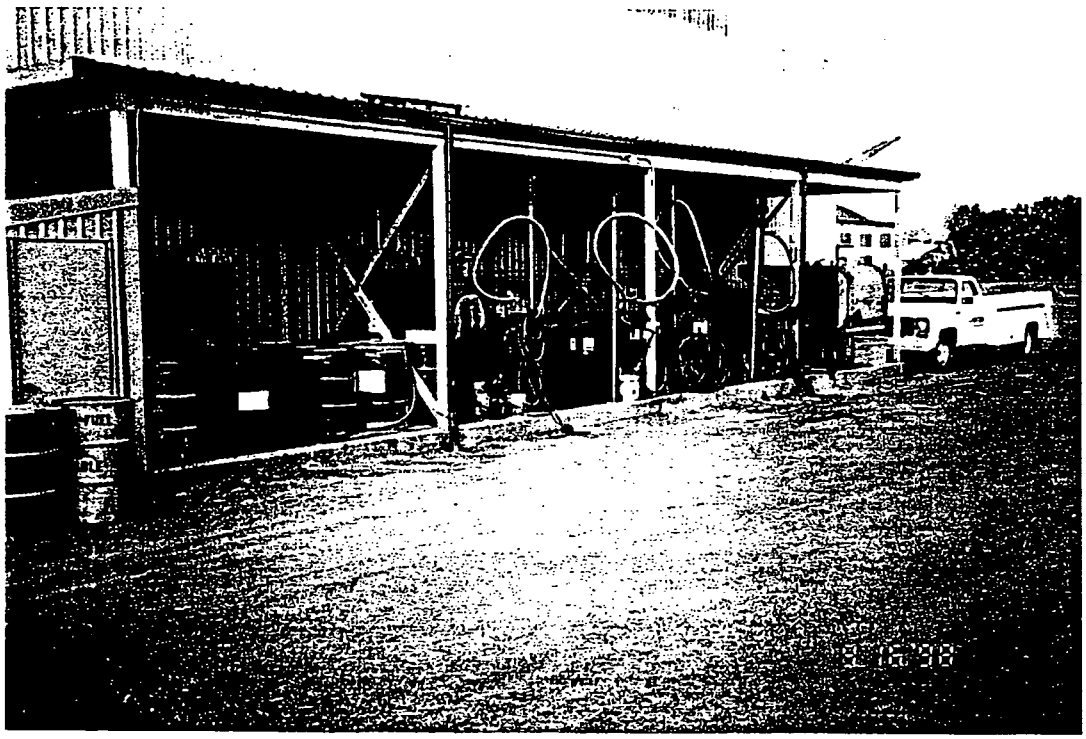


PHOTO 2: (#3) ABOVEGROUND STORAGE AREA

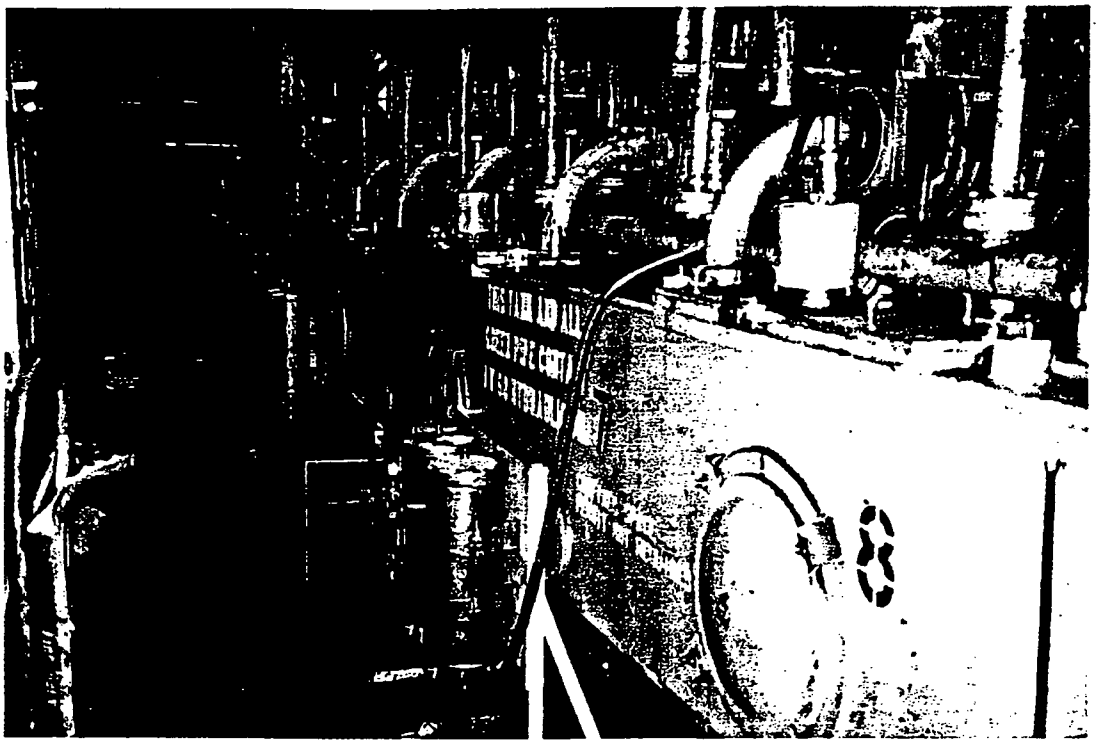


PHOTO 3: (#4) SHEAR EQUIPMENT HYDRAULIC OIL VESSEL

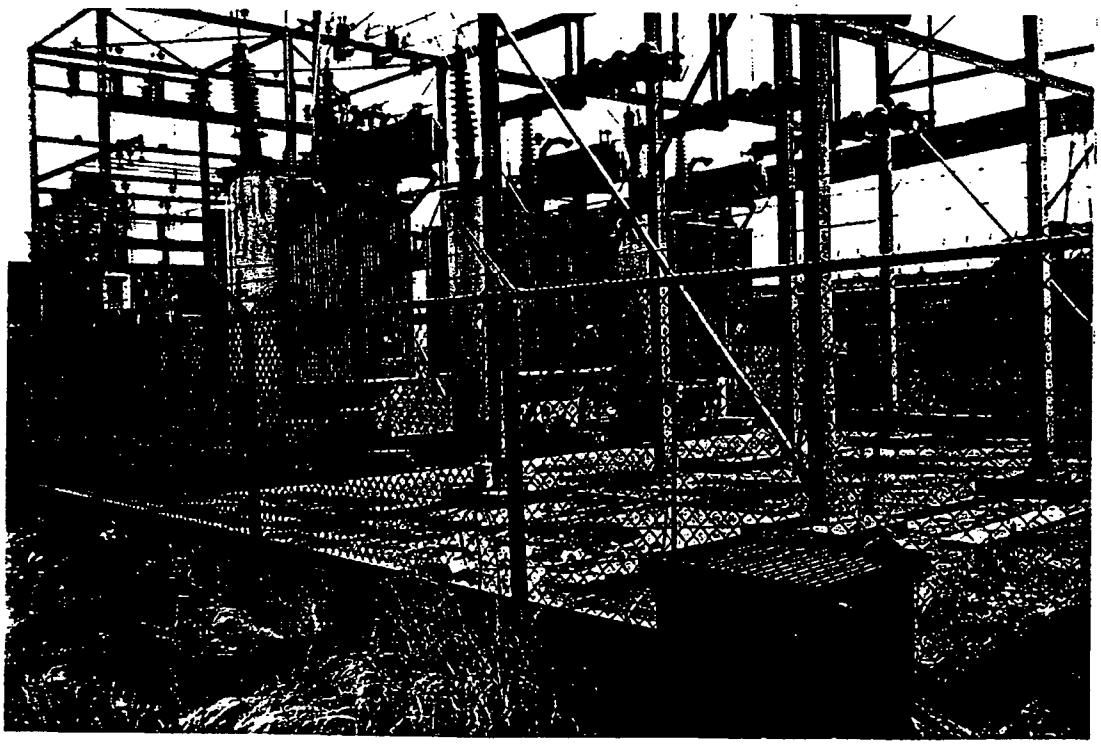


PHOTO 4: (#9) SHREDDER TRANSFORMERS

APPENDIX B

EMERGENCY RESPONSE SHEET

Facility: International Terminals
Project Location: 12005 N. Burgard Road, Portland, Oregon

Environmental Administrator ..... Jim Jakubiak/Extension 6976; Pager 271-0151; Home (b) (6)

Environmental Staff ..... Larry Snodgrass/Extension 690[illegible] (b) (6) ; Home (b) (6)
Environmental Staff ..... Dave Aydelott/Extension 6904; Cell (b) (6) , Home (b) (6)
Environmental Staff ..... Harvey Witham/Extension 6908; Cell (b) (6) Home (b) (6)

EMERGENCY NUMBERS:

Ambulance: **911**
Fire: **911**
Police: **911**

Spill Reporting (for quantities greater than 42 gallons or that may create an oily sheen)

1. Oregon Emergency Management Division 1-800-452-0311
2. National Response Center: 1-800-424-8802
3. EPA Environmental Response Team: 1-201-321-6600
4. Coast Guard 240-9300/240-9338/240-9370
5. Marine Fire and Safety 220-2055

NEED TO KNOW:

- **Reporting Party**
- **Contact Phone(s)**
- **Responsible Party**
- **Material Released**
- **Resource Damages (e.g., dead fish)**
- **Quantity**
- **Concentration**
- **Location**
- **Cleanup Status**

The Environmental Administrator and/or the environmental staff is are be notified immediately of all spills of known hazardous materials or discovery of unknown and potentially hazardous materials. In case of hazard exposure during and/or prior to a medical situation, the hospital and any emergency response personnel shall be notified that patient's clothing may be contaminated.

FOLLOW-UP ACTIONS

1. Identify the source of the spill. If directed by the site safety officer or emergency response staff, control or eliminate the source. This may require notifying vessel commanders and/or agents. Assistance with notification may be provided by Marine Fire and Safety at 220-2055. Follow up calls will be required. Consult with the emergency response coordinator(s).

2. If directed by the Environmental Administrator and/or environmental staff, deploy oil booms to contain the spill. This may require surrounding a vessel or placing a boom across the mouth of the slip. If the spill is on the ground surface, you may be required to cover the nearest storm drain grates, or place booms around them.

3. If directed by the Environmental Administrator and/or environmental staff, conduct cleanup or removal measures.

4. If directed by the Environmental Administrator and/or environmental staff, contact Foss Environmental at (800) 334-0004.

5. If the Coast Guard, Fire Department, other agencies, or contractors are required to respond, arrange for staff to meet them at an appropriate gate or landmark and guide them to the spill area.

6. Complete the Spill Response Report Form.

INTERNATIONAL TERMINALS
SPILL RESPONSE REPORT FORM

Name of person reporting spill: _____ Date: _____

Area of facility where spill occurred: _____

Source of spill: _____

Date and time of spill: _____

Type and amount of material spilled: _____

Approximate size of the spill: _____

Impacts to fish or wildlife: _____

Name of Schnitzer staff notified: _____

Date and time Coast Guard notified: _____

Name of Coast Guard staff notified: _____

Date and time NRC notified: _____

Name of NRC staff notified: _____

NRC Incident Number: _____

Date and time EMD notified: _____

Name of EMD staff notified: _____

EMD Incident Number: _____

Weather conditions/wind direction: _____

Comments: _____

_____

_____

_____

APPENDIX C

RESPONSIBILITIES OF THE ENVIRONMENTAL ADMINISTRATOR AND ENVIRONMENTAL STAFF

The Environmental Administrator and the environmental staff have the responsibility and authority to initiate all spill response measures and hazardous waste operations. These individuals will be responsible for securing areas where a spill or discovery of oil has occurred and safeguarding all exposure until professional spill response personnel have arrived at the incident. In the absence of the Environmental Administrator and/or environmental staff, these responsibilities will fall to another individual knowledgeable in the requirements of the SPCC. This individual shall:

- Verify that the requirements of the SPCC plan are adhered to by employees and subcontractors;
- Verify that the personnel responsible for the identification of hazardous material spills or unknown hazardous and contaminated substances are properly trained (29 CFR 1910.120 - First Responder, Awareness Level);
- Inform all personnel of the specific hazards and safety precautions required at the work area;
- Verify that onsite and offsite emergency communications systems are operational;
- Take the lead in all emergency situations in the source area until a professional emergency response team arrives;
- Establish and maintain site control measures such as work zones;
- Complete and submit records and forms, as necessary;
- Implement the SPCC when site conditions warrant such action;
- Correct any work practices or conditions that may result in a release of hazardous substances to the environment.

The Environmental Administrator is responsible for arranging properly trained personnel to carry out spill response measures or to identify unknown and potentially hazardous substances discovered during site activities. In the absence of the Environmental Administrator and/or the environmental staff, facility staff may elect to notify professional spill response personnel to assist with the incident. This individual shall:

- Be accessible to staff if necessary, to assist in the identification and evaluation of potential hazards and the development of appropriate procedures for addressing known or suspected hazardous materials;
- Plan and supervise technical and administrative aspects of tasks associated with hazardous and/or contaminated substances;
- Determine personnel protection levels and necessary clothing and equipment. This information shall be provided to subcontractors and visitors. Appropriate compliance by these individuals shall be expected;
- Authorize workers to initiate tasks in areas under his control in accordance with the SPCC and the facility's incident response plan.

APPENDIX D

SPCC AMENDMENTS

(Next Page)

Amendment Required:

The Owner shall amend the SPCC Plan in accordance with 40 CFR 112 whenever there is a change in facility design, construction, operation or maintenance which materially affects the facility's potential for the discharge of oil into or upon the navigable water of the Unite States or adjoining shore lines.

Such amendments shall be fully implemented as soon as possible, but not later than six months after such change occurs.

For purposes of this Appendix D, the Owner may elect to revise the entire SPCC Plan, or attach applicable information in this section. In either case, the amended information must be reviewed and certified by a Registered Professional Engineer to be in accordance with good engineering practices.

Periodic Review Required:

Notwithstanding amendments described in the preceding section, the Owner shall complete a review and evaluation of the SPCC Plan at least once every three years.

As a result of this review and evaluation, the Owner shall amend the SPCC Plan withing six months of the review to include more effective prevention and control technology if:

1) Such technology will significantly reduce the likelihood of a spill event from the facility; and

2) Such technology has been field-proven at the time of review.

APPENDIX D:
SITE INSPECTION CHECKLIST

SITE INSPECTION CHECKLIST

SCHNITZER STEEL PRODUCTS CO. - INTERNATIONAL TERMINALS

Stormwater Pollution Prevention Plan

Inspector Signature _____ Date _____

MONTHLY INSPECTION ITEMS						
Inspection Items	Status Acceptable	/ Unacceptable	Comments	Recommended Corrective Action	Date Completed	Initials
Catch Basins						
Unobstructed/operative						
Skimmers present						
Grates in good condition						
Stencils legible (where appropriate)						
Vehicles/Equipment						
Oil leaks						
Drip pans in place						
Pavement						
Condition/repair						
Swept/free of buildup						
Evidence of spill or leakage						
Debris, refuse						
Trailer sweep-off bins						
Trash dumpsters						
Other						
Spill response kits						
Unnacceptable or suspect materials						
Containers						
Kept closed						
Properly labeled						
In good condition						
No signs of leakage or spillage						
Outfalls						
Floating solids						
Oil&Grease sheen						
Oil/Water Separators						
Sediment buildup						

APPENDIX E:
TRAINING RECORD FORM

TRAINING RECORD

DATE: _____ INSTRUCTORS NAME: _____

The training included a discussion of each section of the SWPPP and highlighted spill response, good housekeeping, and proper operation and maintenance of equipment. Other topics and discussion items included:		
Instructor's Signature:		
Participant's Name:	**Participant's Job Function:**	**Participant's Signature:**

DATE: _____ INSTRUCTORS NAME: _____

The training included a discussion of each section of the SWPPP and highlighted spill response, good housekeeping, and proper operation and maintenance of equipment. Other topics and discussion items included:		
Instructor's Signature:		
Participant's Name:	**Participant's Job Function:**	**Participant's Signature:**

Storm Water Best Management Practices Review and Assessment

Burgard Industrial Park
12005 North Burgard Road
Portland, Oregon

Prepared for
Schnitzer Investment Corp.

September 15, 2003

BRIDGEWATER GROUP, INC.

SCHN00204632

CONTENTS

Text

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SECTION 1

INTRODUCTION AND SCOPE OF STORM WATER BMP REVIEW AND ASSESSMENT

1.1 Introduction

This Storm Water Best Management Practices (BMP) Review and Assessment Report presents the results of the storm water BMP review and assessment at the Schnitzer Investment Corp (SIC) Burgard Industrial Park in Portland, Oregon (Site) (Figures 1-1 and 1-2). The BMP review and assessment was performed and this report prepared in accordance with the August 8, 2002, *Enhanced Best Management Practices Storm Water Source Control Plan* and the June 16, 2000, Voluntary Agreement (VCP Agreement) between SIC and the Oregon Department of Environmental Quality (DEQ). This report also incorporates DEQ's February 25, 2003, comments on the August 8, 2002 plan.

1.2 Purpose and Scope of BMP Review and Assessment

1.2.1 Purpose of BMP Review and Assessment

The purpose of the BMP review and assessment was to assess whether the current BMPs at the site are effective in reducing and controlling concentrations of hazardous substances in the site storm water runoff.

1.2.2 Scope of BMP Review and Assessment

The scope of the BMP review and assessment consisted of four tasks. These tasks are:

- Identify and tabulate all structural and operational BMPs employed at the Site.
- Assess proper implementation of identified operational BMPs.
- Review storm water monitoring data to assess effectiveness of identified BMPs.
- Identify drainage basins where additional or enhanced BMPs may be appropriate.

This BMP report presents the results of each of these tasks.

1.2.3 Basins Included in the BMP Review and Assessment

The storm water drainage basins included in the BMP review are those that are located solely on Schnitzer's portion of the Burgard site and are under the direct control of Schnitzer. These basins are:

Basin 1	Basin 2	Basin 3	Basin 4
Basin 5	Basin 6	Basin 10	Basin 13
Basin 14	Basin 15	Basin 16	Basin 19
Basin 20			

Figure 1-3 shows the location of these drainage basins.

Other basins drain into the slip. However, these other basins are not included in the BMP review because they include property on the Burgard site other than SIC's, drain property not on the Burgard site, and/or are under the direct control of other entities.

Basin 16 is included in the BMP review even though a portion of the basin drains the Calbag facility in the northeast portion of the Schnitzer Steel area. Conclusions from the assessment of Basin 16 will consider the possible influence of runoff from the Calbag area.

There are outfalls located along the slip shoreline that are not active and are remnants from the former shipyard. No discharge has been observed from these outfalls even during periods of wet weather. There are no drainage basins associated with these outfalls.

Ongoing storm water system upgrades being performed at the Burgard site have resulted in changes to the storm water basin and outfall designations. Specific changes include the combining of former Basins 5 and 6 into what is now called Basin 5. What was formerly Basin 7 is now referred to as Basin 6. These changes are reflected in the most recent (March 2003) Storm Water Pollution Prevention and Control Plan for the Site.

SECTION 2

CURRENT BMPS AT THE BURGARD SITE

The current BMPs at the site consist of several operational BMPs as well as structural BMPs. The initial task of the BMP review and assessment was to identify and compile these current BMPs and assess how and to what degree they are implemented.

The review of the current BMPs consisted of:

- Establish a list of all current operational and structural BMPs.
- Review the implementation practices of the operational BMPs.
- Review the type and degree of the structural BMPs (e.g. storm water treatment features) currently used.

Each of these is discussed below.

2.1 Operational BMPs

Table 2-1 presents the operational BMPs currently employed at the Burgard site. The table also notes:

- The frequency of the BMP.
- Who is responsible for ensuring that the BMP is performed.
- How the BMP is documented.
- Necessary training and equipment for performance of the BMP.

Schnitzer personnel were interviewed and a site reconnaissance performed in June 2003 to assess the actual implementation of the operational BMPs noted in Table 2-1. The comment column of Table 2-2 notes the results of the interviews and site reconnaissance.

In general, the scope of the operational BMPs appears appropriate for the scope of the site and site activities. Based on the employee interviews and site observations, most of the identified operational BMPs are properly implemented. However, some deficiencies were noted in the implementation of the operational BMPs. Most of the deficiencies were administrative issues. The most common deficiency was the lack of inclusion of the BMP on the monthly inspection checklist. Other issues that warrant specific attention included:

- Establish protocol for locating equipment drip pans and management of drip pans.
- Cover small trash cans in dock area as necessary to prevent spillage or releases.

- Increase ASR hauling capacity to ensure all staged ASR is under cover.
- Remove drum of oily material from around shear (runoff in this area contained on site and routed to shredder cooling water system).
- Label catch basins as per Storm Water Pollution Control Plan.
- Reassess necessary frequency of magnetic sweeper and revise SWPCP as necessary. Although metal debris was not observed to be an issue during site reconnaissance, the frequency of the metal sweeping is less frequent than noted in the current SWPCP.

It is our understanding that Schnitzer personnel have begun addressing the above issues.

2.2 Structural BMPs

Table 2-2 presents the structural BMPs currently present on the Burgard site. All of the 13 drainage basins included in the EBMP program have some form of structural BMP. Ten of the 13 basins have one or more of the following structural BMPs:

- Sand filter
- Oil/water separator
- Storm Water Management® catch basin filter system
- Vortechnics® water treatment unit
- Physical separation and containment of hazardous substances

In addition, filter socks are located in all catch basins on the site and are replaced regularly.

No significant design or operations and maintenance issues were noted in any of the structural BMPs through the personnel interviews and site reconnaissance.

Schnitzer is continuing to identify opportunities for additional structural BMPs and is initiating installation of additional Storm Water Management® catch basin filters in Basin 16 and has installed an improved oil/water separator in Basin 14.

SECTION 3

ASSESS EFFECTIVENESS OF CURRENT BMPS

The effectiveness of the current BMPs is dependant first on the proper implementation of the operational BMPs and design and operation of the structural BMPs. Based on the assessment of the current BMPs presented in Section 2, the current BMPs are being properly implemented, designed, and operated.

Given the proper implementation of the current BMPs, the effectiveness of the BMPs was assessed through a review of the storm water monitoring data collected under the site's 1200Z General Industrial Storm Water permit.

3.1 Storm Water Monitoring Data

As noted in the EBMP work plan, the drainage basins addressed in the EBMP program are covered under an NPDES 1200Z General Storm Water Permit. Requirements for this permit include twice-yearly sampling of most of the outfalls covered under the permit. Representative storm water samples have been collected from the various drainage basin outfalls since at least 1993. All of the collected storm water samples were analyzed for the following parameters:

- Total copper
- Total lead
- Total zinc
- pH
- Total suspended solids
- Oil & grease

The results of this sampling and analysis were reviewed to provide a relative indication of the effectiveness of the BMPs.

3.1.1 Basins Included in Data Review

Sufficient data has been collected from 9 of 13 of the drainage basins included in the EBMP program to allow meaningful analysis of the storm water contaminant concentrations magnitude and trends. These basins are:

Basin 2
Basin 3
Basin 4

Basin 5
Basin 6
Basin 14
Basin 15
Basin 16
Basin 20

There is insufficient data from four drainage basins to directly assess the concentration trends in the storm water runoff from the drainage basins. The effectiveness of the BMPs in these basins was assessed as noted below.

Basin 1

Storm water samples have not been historically collected from Basin 1 due to lack of discharge at the Basin 1 outfall. The lack of discharge was apparently due to a breach in the conveyance pipe. A new Basin 1 conveyance line and a coalescing plate oil/water separator were constructed in 2002 and a storm water sample was collected in early 2003. None of the parameters exceeded the permit benchmarks. However, the lack of historical data precludes estimating a concentration trend over time. Basin 1 will continue to be monitored to confirm the effectiveness of the BMPs in this drainage basin.

Basin 10 and Basin 13

The activities occurring in Basins 10 and 13 are, and have been, similar to those occurring in Basin 6. The surface conditions in each of the drainage basins are also similar (i.e. paved). Based on these similar activities and conditions, and in accordance with condition B.1.c of the NPDES general storm water permit, storm water samples that have been collected from Basin 6 are considered representative of the storm water runoff from Basin 10 and Basin 13. The effectiveness of the Basin 10 and Basin 13 BMPs was therefore based on the review of the Basin 6 data.

A sand filter and oil/water separator were constructed in Basin 6 in July 2002. As a result, storm water runoff from Basin 6 may no longer be representative of runoff from Basin 10 and Basin 13. Any storm water data collected from Basin 6 after July 2002 was not considered in the assessment of the Basin 10 or Basin 13 to account for the recent storm water system upgrades in Basin 6.

Basin 19

The activities occurring in Basin 19 are, and have been, similar to those occurring in Basin 20. The surface conditions in each of the drainage basins are also similar (i.e. mixture of pavement and gravel surfaces). Based on these similar activities and conditions, and in accordance with condition B.1.c of the NPDES general storm water permit, storm water samples that have been collected from Basin 20 are considered representative of the storm water runoff from Basin 19. The effectiveness of the Basin 19 BMPs was therefore based on the review of the Basin 20 data.

3.1.2 Recent Data Used in Trend Analysis

The intent of the storm water data review was to identify *current* trends in the monitoring data. Except for basins that have little current data (Basins 14 and 15), data generated in the early years of storm water monitoring (1993 through 1997) do not provide relevant information on current concentration trends which is the fundamental measure of BMP effectiveness. Thus, only data generated since 1997 was used in the storm water data review. The early data was used for Basins 14 and 15 to provide an adequate data set. However, the age of the data was considered in the assessment of the current effectiveness of the BMPs.

Early (1993 through 1997) storm water samples were analyzed for other metals in addition to those currently analyzed. Analysis for these parameters ceased in 1997 with the issuance of the current 1200Z permit which did not include these parameters in the monitoring program. As described above, the lack of recent data for these parameters does not allow for analysis of relevant (i.e. recent) trends in the concentrations. Thus, this early metal data was not used in the assessment of the current effectiveness of the BMPs.

3.2 Results of Storm Water Monitoring Data Review

The results of the NPDES sampling and analysis results to date were assembled and reviewed to determine if either of the following two conditions are present:

1. Basins and contaminants where concentrations consistently exceed NPDES storm water 1200Z permit benchmark values and where no downward trend in concentration is observed.
2. Basins and contaminants where concentrations occasionally exceed benchmark values and where concentrations are unchanging or increasing.

The analysis was performed by normalizing the measured concentrations to the storm water permit benchmark concentrations for each parameter. This normalization term is referred to as the "Comparison Factor" which is defined as:

$$CF = \frac{C_m}{C_{BM}}$$

Where:

CF = Comparison Factor
C_m = Measured Concentration
C_{BM} = Storm water permit benchmark concentration

Comparison Factors were calculated for all storm water monitoring results and the resulting values used in the data assessment. Comparison Factors were then reviewed relative to the two criteria presented above. Basins meeting either of the criteria will be considered for additional or enhanced BMPs.

The results of this data review on a basin-by-basin basis are presented below. Figures 3-1 through 3-9 present the results of data analysis for each drainage basin.

3.2.1 Basin 2

Figure 3-1 shows that the contaminant concentrations in storm water samples from Basin 2 are trending downward and that the average Comparison Factors have been less than one (i.e., the concentrations have been less than permit benchmarks) for the past several years. The only individual parameter that has exceeded benchmarks in the past 3 years is copper.

3.2.2 Basin 3

Figure 3-2 shows that the contaminant concentrations in storm water samples from Basin 3 are trending downward and that the average Comparison Factors have been less than one in three of the past four monitoring events. The average Comparison Factor in the most recent (June 2003) sampling event (0.04) was the lowest ever measured in Basin 3.

3.2.3 Basin 4

Figure 3-3 shows that the contaminant concentrations in storm water samples from Basin 4 are trending downward and that the average Comparison Factors have been less than one for the past several years. The only individual parameter that has exceeded benchmarks in the past 3 years is copper. The most recent three sampling events have noted 2 of the 3 lowest Comparison Factors (both less than 0.23) ever measured in Basin 4.

3.2.4 Basin 5

Figure 3-4 shows that the contaminant concentrations in storm water samples from Basin 5 are trending downward and that the average Comparison Factors have been less one for the past several years. No parameter has exceeded their respective benchmark the last three sampling events.

3.2.5 Basin 6

Figure 3-5 shows that the contaminant concentrations in storm water samples from Basin 6 are trending downward and that the average

Comparison Factors have been less than one for the past several years. No parameter has exceeded their respective benchmark the past eight sampling events over the last five years.

3.2.6 Basin 14

Figure 3-6 shows that the average Comparison Factors for Basin 14 have been generally less than one with the average Comparison Factor exceeding one only once in the last seven years of monitoring. The average Comparison Factor has exceeded one only twice in the past 10 years of monitoring. No distinct trend is present in the Comparison Factor values over the past several years.

3.2.7 Basin 15

As shown in Figure 3-7, Basin 15 has been monitored only one time in the past seven years. Samples collected between 1993 and 1996 showed an upward trend in average Comparison Factors. However, only one value exceeded one during this early monitoring period. Starting with the November 1995 monitoring event, the average Comparison Factors have decreased. None of the parameters exceeded their respective benchmarks in the most recent sampling in February 2003. Overall, only one monitoring event over the last ten years noted a Comparison Factor greater than one.

3.2.8 Basin 16

Figure 3-8 shows the Comparison Factors for Basin 16. The average Comparison Factor has been less than one for all except one monitoring event. All of the monitoring events over the past three years have noted a Comparison Factor of less than one. None of the parameters exceeded their respective benchmarks in the most recent sampling in February 2003. No distinct trend is present in the Comparison Factor values over the past several years.

3.2.9 Basin 20

Figure 3-9 shows that the average Comparison Factors over the past four years have all been well less than one. No individual parameters have exceeded a Comparison Factor of greater than 0.25 in any of the samples collected from Basin 20. Given these low concentrations (many at the parameter detection limits) no distinct trend is present in the Comparison Factor values.

3.3 Basin Assessment

3.3.1 Basin 1

Basin 1 has been sampled once after the installation of storm water system upgrades in August 2002. No NPDES benchmarks were exceeded in the February 2003 sampling event. Given the recent installation of the upgrades and resulting lack of relevant historical data, it is not possible to identify any Comparison Factor trends. Additional monitoring of storm water runoff from Basin 1 is necessary to confirm that existing BMPs are adequate.

3.3.2 Basins 2, 3, 4, 5, and 6

The clearly downward trend in the Comparison Factors and the lack of benchmark exceedances in the recent sampling events, indicate that current BMPs are effective for Basins 2, 3, 4, 5, and 6. Consideration of additional BMPs is not necessary at this time. Continued monitoring of these basins is appropriate to confirm the downward trend and continued lack of benchmark exceedances in these basins.

3.3.3 Basin 10 and Basin 13

The effectiveness of the BMPs in Basin 10 and Basin 13 were assessed based on the pre-July 2002 monitoring data from Basin 6. As noted in Section 3.1.1, data from Basin 6 is considered representative of Basin 10 and Basin 13 up until July 2002 when additional structural BMPs were installed in Basin 6.

Figure 3-5 shows that after discarding the most recent data (the only data point in the data set from after when the additional BMPs were installed in Basin 6 in July 2002), an overall downward trend in the Comparison Factors in Basin 6 is evident. Furthermore, the Comparison Factors have all been less than one for several years prior to July 2002. This downward trend and the consistent Comparison Factor values of less than 1 indicates that consideration of additional BMPs for Basin 10 or Basin 13 is not necessary at this time.

3.3.4 Basin 14 and 16

Comparison Factors occasionally exceed one and there is no clear downward trend in the average Comparison Factors. Therefore, additional BMPs should be considered for Basins 14 and 16.

3.3.5 Basin 15

There is inadequate data to assess whether there is an ongoing trend in the Comparison Factors. The only data collected from Basin 15 in the past seven years noted an average Comparison Factor of 0.38 and all of

the individual parameters had a Comparison Factor of less than 0.6. Based on these low Comparison Factors in the most recent sampling, consideration of additional BMPs is not necessary at this time. Furthermore, as discussed in Section 4.1.1, the runoff characteristics for Basin 15 are anticipated to be similar to that from Basin 13. As discussed in Section 3.3.3, downward trending Comparison Factors and Comparison Factor values less than 1 are inferred to be characteristic of the Basin 13 storm water runoff. Continued monitoring of Basin 15 is necessary to confirm any trends in the Comparison Factors and further assess the effectiveness of the BMPs in Basin 15.

3.3.6 Basin 19

As noted in Section 3.1.1, Basin 20 is considered representative of Basin 19. Based on the very low Comparison Factors and the lack of any exceedance of any storm water benchmark in any of the monitoring samples from Basin 20, consideration of additional BMPs in Basin 19 is not necessary at this time.

3.3.7 Basin 20

Based on the very low Comparison Factors and the lack of any exceedance of any storm water benchmark in any of the monitoring samples from Basin 20, consideration of additional BMPs in Basin 20 is not necessary at this time.

SECTION 4

FUTURE MONITORING OF BMP EFFECTIVENESS

Two drainage basins (Basin 14 and Basin 16) have been identified as candidates for additional BMPs. If additional BMPs are installed/implemented in these basins, future monitoring of these basins will be necessary to confirm the effectiveness of the additional BMPs. In addition, continued monitoring of the other drainage basins is necessary to continue to confirm the effectiveness of the current BMPs. The scope of the future monitoring to be performed to accomplish these objectives is presented below.

4.1 Storm Water Sampling and Analysis

The continued effectiveness of the BMPs and the effectiveness of possible additional BMPs in Basins 14 and 16 will be monitored primarily through the site's NPDES storm water sampling program. As requested by DEQ, limited additional parameters will be selectively included in the monitoring program to confirm the representativeness and adequacy of the NPDES monitoring parameters as surrogates for other potential contaminants.

4.1.1 Monitoring Basins

Several of the drainage basins on the Burgard site are anticipated to have similar activities and surface conditions such that their storm water runoff is anticipated to be similar. Section 1.c of Schedule B of the 1200Z NPDES General Storm Water permit allows for the monitoring of representative discharges when there are "substantially identical effluents" discharging from "drainage areas serving similar activities" and where the discharges are expected to be "similar in composition". On this basis, the site's drainage basins can be combined into "Basin Monitoring Groups". Table 4-1 shows the Basin Monitoring Groups and the characteristics that provide their basis.

The Basin Monitoring Groups differ somewhat from the previous outfall groupings used for past NPDES monitoring. The groups have been adjusted based on recent storm water system upgrades and review of current site operations.

4.1.2 Analytes Included in Monitoring Program

Metals

In addition to the metals currently monitored under the 1200Z permit (lead, copper, and zinc), storm water permits previously required that samples be analyzed for other metals. These "pre-1200Z metals" (arsenic, cadmium, chromium, mercury and nickel) were analyzed during the period 1993 through 1997. Required monitoring of this broader list of metals was not carried forward when the 1200Z permit was revised because DEQ concluded that lead, copper and zinc would be good surrogates for the broader list of metals. Review of the concentrations of metals measured in site storm water from 1993 through 1997 shows this conclusion to be correct for the Burgard site.

Figures 4-1 through 4-9 show a comparison of relative concentrations of lead, copper and zinc and the pre-1200Z metals. For lead, copper and zinc, the same Comparison Factor is used as is described above. Because there was no permit limit or benchmark for metals prior to 1997, the Comparison Factor used for the pre-1200Z metals was calculated using a reference value of five times the acute ambient water quality criterion. The current 1200Z benchmarks are based on five times the acute ambient water quality criterion. The comparisons show two conclusions:

- Almost all of the basins note a good correlation between the Comparison Factor of the current 1200Z metals to the Comparison Factor of the earlier monitored metals. Four of the eight basins show a linear correlation coefficient of greater than 0.9 and considering all of the data across all of the basins shows a correlation coefficient of 0.89.
- The relative Comparison Factors for the current 1200Z metals (copper, lead, and zinc) are about one order of magnitude greater than the relative Comparison Factors for the pre-1200Z metals. Thus an exceedance of 5 times the acute ambient water quality criterion for the pre-1200Z metals (meaning a Comparison Factor > 1) is highly unlikely if the current 1200Z metals do not show an exceedance.

Based on the above, the current 1200Z metals are suitable surrogates for the site COI metals. Monitoring of lead, copper, and zinc under the current 1200Z permit will effectively monitor the effectiveness of the current BMPs and demonstrate whether future BMP improvements are effective in preventing unacceptable concentrations of metals in the storm water runoff.

Polycyclic Aromatic Hydrocarbons

The Oil and Grease monitoring performed for the storm water permit is anticipated to be a suitable surrogate for polycyclic aromatic hydrocarbons (PAHs). Additional BMPs shown to be effective based on results of the Oil and Grease analyses are expected to be effective for PAHs.

However, in response to DEQ's February 25, 2003 comments on the EBMP plan, PAHs will be included in the storm water monitoring to confirm the anticipated correlation between Oil and Grease and PAHs. In particular, PAHs will be included in the analysis at a basin with historically higher Oil and Grease Comparison Factors (Basin 2) and at a basin with historically low Oil and Grease Comparison Factors (Basin 20). The results of one year of monitoring at these basins will be reviewed to assess whether Oil and Grease is a suitable surrogate for PAHs or whether additional PAH monitoring is necessary.

4.1.3 Monitoring Periods and Frequencies

The storm water monitoring will be performed at frequencies consistent with the requirements of the NPDES 1200Z permit (two sampling events per year). In addition, in response to DEQ's request, and if feasible, one of the two annual storm water samples will be collected during initial rainfall events in the fall to capture "first flush" runoff. First flush samples often can not be obtained from basins with end-of-pipe treatment due to the retention capacity of the treatment systems.

4.1.4 Summary of Monitoring Program

Table 4-1 presents a summary of the drainage basin storm water runoff monitoring program that will be performed to assess the effectiveness of additional BMPs implemented in Basins 14 and 16 and the ongoing effectiveness of current BMPs in the other drainage basins.

4.2 Effectiveness Criteria

The effectiveness of current BMPs continue to be assessed by noting the criteria described in Section 3.2.

Additional BMPS implemented at Basins 14 and 16 will be considered effective if the additional BMP(s) results in a statistically significant reduction in the Comparison Factors. If a statistically significant reduction in the Comparison Factors is not observed, additional BMPs will be identified and considered for these drainage basins.

Table 2-1
Operational Best Management Practices
Burgard Industrial Park

Control/BMP	Frequency	Responsibility	Documentation of Performance	Necessary Training	Necessary Equipment Supplies, Contractors	Comments
All vehicle maintenance conducted indoors.	Continuous	Maintenance supervisor	Not on monthly checklist	Annual storm water training	None	Containment provided when portable equipment serviced outside. Add to monthly inspection sheet.
Drip pans or other containment in use for all stored vehicles/equipment to contain leaks.	Continuous	Yard foreman	Monthly checklist	Annual storm water training	Drip pans	No pans observed in yard. Need protocol for management of pans after use.
Lids/covers on trash bins and dumpsters as necessary to prevent spills and releases.	Continuous	Yard foreman	Monthly checklist	Annual storm water training	Trash bins with lids	Large bins with lids present in yard. Small trash cans without lids present in dock area.
All vehicle washing restricted to covered truck wash.	Continuous	Yard foreman	Not on monthly checklist	Annual storm water training	Outside contractor maintains system	Add to monthly checklist.
Run-off from shredder residues diverted away from outfalls and into shredder process water.	Continuous	Shredder supervisor	Not on monthly checklist	Annual storm water training	None	Add to monthly checklist. All ASR observed in contained area.
Run-off from specialty scrap areas diverted away from outfalls.	Continuous	Yard foreman	Not on monthly checklist	Annual storm water training	None	Add to monthly checklist. Revise description of BMP in SWPPP.
Shredder residues stockpiled under cover pending offsite shipment and disposal.	Continuous	Shredder supervisor	Not on monthly checklist	Annual storm water training	ASR hauler	Need increased hauling capacity to prevent outside staging of ASR. Add to monthly checklist.
Accurate storm sewer drainage and piping layouts maintained.	Continuous	Environmental administrator	As noted in revised SWPPP	Technical	CADD operator Underground utility locators	Update of storm water system provided in recent SWPPP.
Hazardous substances properly identified, labeled and stored.	Continuous	Environmental administrator	Monthly checklist	Technical Annual storm water training	Waste contractors Containers, spill pallets	Add "disposal" to BMP description.
Spill containment pallets in use under all containers of liquids outside of secondary containment structures.	Continuous	Yard foreman	Not on monthly checklist	Annual storm water training	Spill pallets	Drum of oily material with no spill pallet near shear. Add to monthly checklist.

Table 2-1
Operational Best Management Practices
Burgard Industrial Park

Control/BMP	Frequency	Responsibility	Documentation of Performance	Necessary Training	Necessary Equipment Supplies, Contractors	Comments
Signs/stencils used to warn against dumping materials into storm drains, where problems exist.	Continuous	Environmental administrator	Monthly checklist	Annual storm water training	Stencil	No catch basin label observed.
Storm drain covers provided in areas where spills or leaks are most prone to occur.	Continuous	Environmental administrator	Not on monthly checklist	Annual storm water training	*Pads located in Building B*	Used for specific, temporary conditions. None observed during site visit. Add to monthly checklist.
Spill response kits provided in areas where spills are most prone to occur.	Continuous	Environmental administrator	Monthly checklist	Annual storm water training	Spill kits	Locations shown on SPCC. Numerous observed around site. One kit compromised.
Stationary equipment inspected for evidence of leaks or maintenance issues which may result in leaks.	Weekly	Equipment operators	Monthly checklist	Operator training	None	Possibly documented through maintenance request. Equipment inspected each day before use by operator.
Accessible areas are swept with a vacuum/broom sweeper.	Weekly	Maintenance supervisor	Contractor invoice	Contractor training	Outside contractor	Roadways observed clean. Some dirt in non-traveled areas.
Accessible areas are swept with a magnetic sweeper.	Bi-weekly(?)	Maintenance supervisor	Monthly checklist	Operator training	On site magnetic sweeper	Not necessarily every-other week. Little metal debris observed on site outside storage areas.
Oil/water separators inspected for excessive sediment accumulation (i.e., above drain pipe inlet).	Monthly	Environmental administrator	Monthly checklist	Annual storm water training	None	
Unpaved portions of site inspected for signs of erosion.	Monthly	Environmental administrator	Not on monthly checklist	Annual storm water training	None	Add to monthly checklist.
Stormwater outfall discharges inspected for color, foam, sheen, and other visible evidence of potential problems.	Monthly	Environmental administrator	Monthly checklist	Annual storm water training	None	
Scrap acceptance policy established and reviewed for applicability and adequacy (revised as necessary).	Annually	Environmental administrator	Written policy	Technical	None	Need to include policy review date on written policy.

Table 2-1
Operational Best Management Practices
Burgard Industrial Park

Control/BMP	Frequency	Responsibility	Documentation of Performance	Necessary Training	Necessary Equipment Supplies, Contractors	Comments
Employees trained regarding stormwater pollution prevention and spill response.	Annually	Environmental administrator	Training form in SWPPP	Technical	None	
Stormwater pollution prevention procedures reviewed, and revised as necessary.	Annually	Environmental administrator	Plan as dated	Technical	None	Need to show document review date on document.
Existing pavement maintained to minimize erosion.	As Needed	Maintenance supervisor	Work orders for paving	Technical	Contractors	Maintenance paving of roadways occurring during site visit.
Dry cleanup methods (e.g., absorbent) used for spilled or leaked liquids in processing and maintenance areas.	As Needed	Person discovering spill	Only if >RQ	Annual storm water training	Absorbent	Purchasing ensures adequate absorbent on site. Proper absorbent use observed at Cal Bag area during site visit.
Dust controlled by maintaining clean pavement and posting speed limits, limiting the need for water application.	As Needed	NA	NA	NA	NA	Redundant with other BMPs. Remove from BMP list.
Oil/water separators pumped out.	As Needed	Environmental administrator	Purchase orders, invoices. Monthly checklist.	Annual storm water training	Outside contractor	
Maintenance schedule developed for all vehicles/equipment (based on manufacturer's recommendations).	Once	Maintenance supervisor	Maintenance records	Technical	Outside contractor	
Procedures established for managing potentially hazardous materials inadvertently received.	Once	Environmental administrator	None	Technical	None	
Spill prevention and response procedures established.	Once	Environmental administrator	SWPP and SPCC plan	Technical	None	

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Table 2-2
Structural BMPs
Burgard Industrial Park

Drainage Basin[1]	Outfall	BMP Technology(ies)	Date Installed	Description/Dimensions	Engineering Analysis and Design	O&M Requirements	O&M Responsibilities Authorities	Inspections Documentation	Necessary Equipment Supplies, Contractors
1	1	Physical containment	1980s	Berms and grades contain and capture runoff from core slab and shredder within Basin 1 All runoff from core slab and shredder area routed to shredder closed-loop cooling water system.	Surveyed grade design	Sumps and lines cleaned as needed. Concrete repaired as necessary.	Maintenance foreman	None	None
		Oil/water separator	Aug-02	17-ft long by 9-ft wide by 7-ft high separator. 877 GPM capacity. Sediment weir, 3500 ft^2 coalescing media, oil-retaining baffle.	Based on City storm water manual design criteria.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
2	2	Physical containment	1980s	Berms and grades contain and capture runoff from shredder area adjacent to Basin 2 All runoff from shredder area routed to shredder closed-loop cooling water system.	Surveyed grade design	Sumps and lines cleaned as needed. Concrete repaired as necessary.	Maintenance foreman	None	None
		Vortechnics treatment unit	Aug-98	Vortechs Model 7000	Vortech design criteria.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
		Sand filter	Aug-01	8 ft wide by 30 ft long by 4 ft deep.	Professional judgment.	Inspected monthly. Replace sand as necessary.	Environmental administrator.	Monthly checklist.	Sand supplier
3	3A	Oil/water separator	Aug-01	15 ft long by 7 ft high by 9 ft wide two stage	Based on City storm water manual design criteria.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
		Sand filter	Aug-01	25 ft long by 11 ft wide by 2-ft deep sand filter	Based on City storm water manual design criteria.	Rake surface sand quarterly. Replace sand annually	Environmental administrator.	Monthly checklist.	Sand supplier
4	4A	Oil/water separator	Aug-01	15 ft long by 7 ft high by 9 ft wide two stage	Based on City storm water manual design criteria.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
		Sand filter	Aug-01	40 ft long by 11 ft wide by 2-ft deep	Based on City storm water manual design criteria.	Rake surface sand quarterly. Replace sand annually	Environmental administrator.	Monthly checklist.	Sand supplier

Table 2-2
Structural BMPs
Burgard Industrial Park

Drainage Basin[1]	Outfall	BMP Technology(ies)	Date Installed	Description/Dimensions	Engineering Analysis and Design	O&M Requirements	O&M Responsibilities Authorities	Inspections Documentation	Necessary Equipment Supplies, Contractors
5	5A	Physical containment	1980s	Berms and grades contain and capture runoff from Turnings Slab within to Basin 5 All runoff from Turnings Slab routed to shredder closed-loop cooling water system.	Surveyed grade design	Sumps and lines cleaned as needed. Concrete repaired as necessary.	Maintenance foreman	None	None
		Oil/water separator	Aug-01	25 ft long by 7 ft high by 9 ft wide two stage	Based on City storm water manual design criteria.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
		Sand filter	Aug-01	140 ft long by 11 ft wide by 2-ft deep	Based on City storm water manual design criteria.	Rake surface sand quarterly. Replace sand annually	Environmental administrator.	Monthly checklist.	Sand supplier
6	6A	Oil/water separator	Jul-02	15 ft long by 7 ft high by 9 ft wide two stage	Based on City storm water manual design criteria.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
		Sand filter	Jul-02	50 ft long by 11 ft wide by 2-ft deep	Based on City storm water manual design criteria.	Rake surface sand quarterly. Replace sand annually	Environmental administrator.	Monthly checklist.	Sand supplier
10	10	Grease-trap catch basins	1970's	2 ft by 2 ft by 2 ft	Standard industrial design	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Catch basin filter inserts
13	13	Physical containment	1980s	Berms and grades contain and capture runoff from shear area within Basin 13. All runoff from shear area routed to shredder closed-loop cooling water system.	Surveyed grade design	Sumps and lines cleaned as needed. Concrete repaired as necessary.	Maintenance foreman	None	None
		Oil/water separator	Nov-91	Two 4 stage separators in series. Each stage about 2 ft wide by 2-ft long by 4 feet deep. Inverted flow pipes between stages.	Professional judgment.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
14	14	Oil/water separator	Jun-03	17-ft long by 9-ft wide by 9-ft high separator. 877 GPM capacity. Sediment weir, 3550 ft^2 coalescing media, oil-retaining baffle.	Based on City storm water manual design criteria.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.
15	15	Oil/water separator	Nov-91	Two 4 stage separators in series. Each stage about 2 ft wide by 2-ft long by 4 feet deep. Inverted flow pipes between stages.	Professional judgment.	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Vacuum truck.

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Table 2-2
Structural BMPs
Burgard Industrial Park

Drainage Basin[1]	Outfall	BMP Technology(ies)	Date Installed	Description/Dimensions	Engineering Analysis and Design	O&M Requirements	O&M Responsibilities Authorities	Inspections Documentation	Necessary Equipment Supplies, Contractors
		Physical containment	1980s	Concrete curb and floor contain spills and roof prevents runoff from new and used petroleum product storage area within Basin 16.	Standard engineering design.	Inspected monthly. Repaired as necessary.	Environmental administrator.	None	None
16	16	Oil/water separator	Aug-97	Treats Cal Bag runoff.	Professional judgment.	Inspected monthly. Cleaned as necessary.	CalBag Environmental staff.	Monthly checklist.	Vacuum truck.
		Storm Water Management filter	1998	On catch basin near maintenance area.	Storm Water Management design criteria	Periodic replace filter cartridge.	Environmental administrator.	Monthly checklist.	Filters from Storm Water Management.
19	19	Grease-trap catch basins	1970's	2 ft by 2 ft by 2 ft	Standard industrial design	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Catch basin filter inserts
20	20	Grease-trap catch basins	1970's	2 ft by 2 ft by 2 ft	Standard industrial design	Inspected monthly. Cleaned as necessary.	Environmental administrator.	Monthly checklist.	Catch basin filter inserts

1 - Drainage basin based on March 2003 SWPPC plan
All basins have grease-trap catch basins

Table 4-1
Storm Water Monitoring Program
Burgard Industrial Park

Monitoring Group	Drainage Basin	Drainage Basin Characteristics	Analytes 1200Z	Analytes PAHs
A	1	Paved access road. o/w separator.	X	
B[1]	2, 3, 4, 5, 6	Paved, yard and dock storage areas. o/w separator with sand filter.	X	X
C[2]	10	Paved. Dock loading and unloading.	X	
D[3]	13, 15	Paved. Dock loading and unloading. o/w separator.	X	
E	14, 16	Paved, access road. Building roof drains. o/w separator.	X	
F	20, 19	Paved and unpaved areas near head of slip. Few activities.	X	X

Samples collected twice per year from at least one basin in each basin group in accordance with 1200Z monitoring requirements.

1 - Collect sample from Basin 2 in each Monitoring Group B sampling event during first year to assess O&G and PAH relationship.

2 - Catch basins in Basin 10 currently covered with large crane. No current drainage from basin.

3 - Collect Monitoring Group D sample from Basin 15 to provide adequate database for future trend analysis.

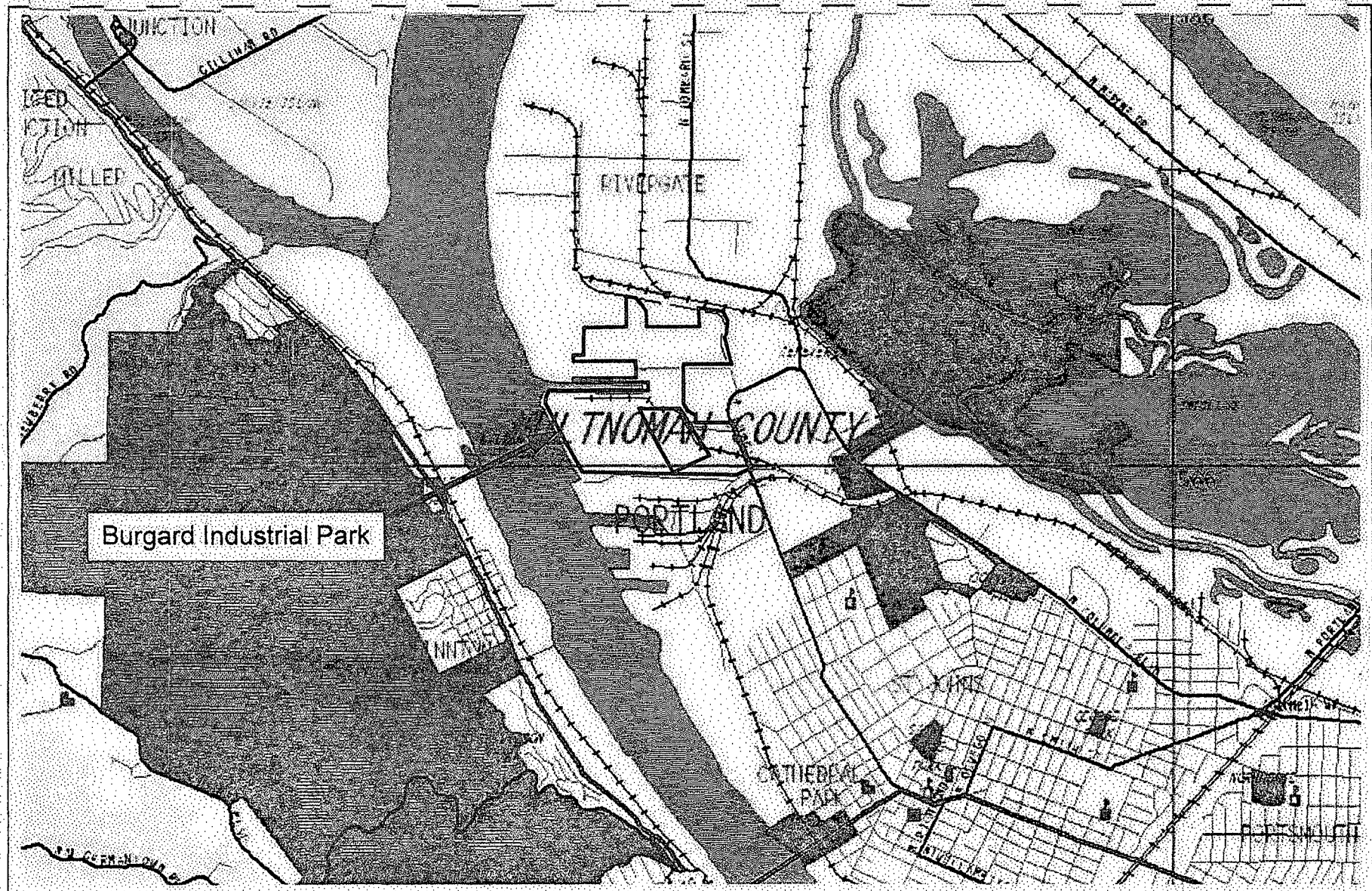

Figure 1-1
Site Location Map
Burgard Industrial Park

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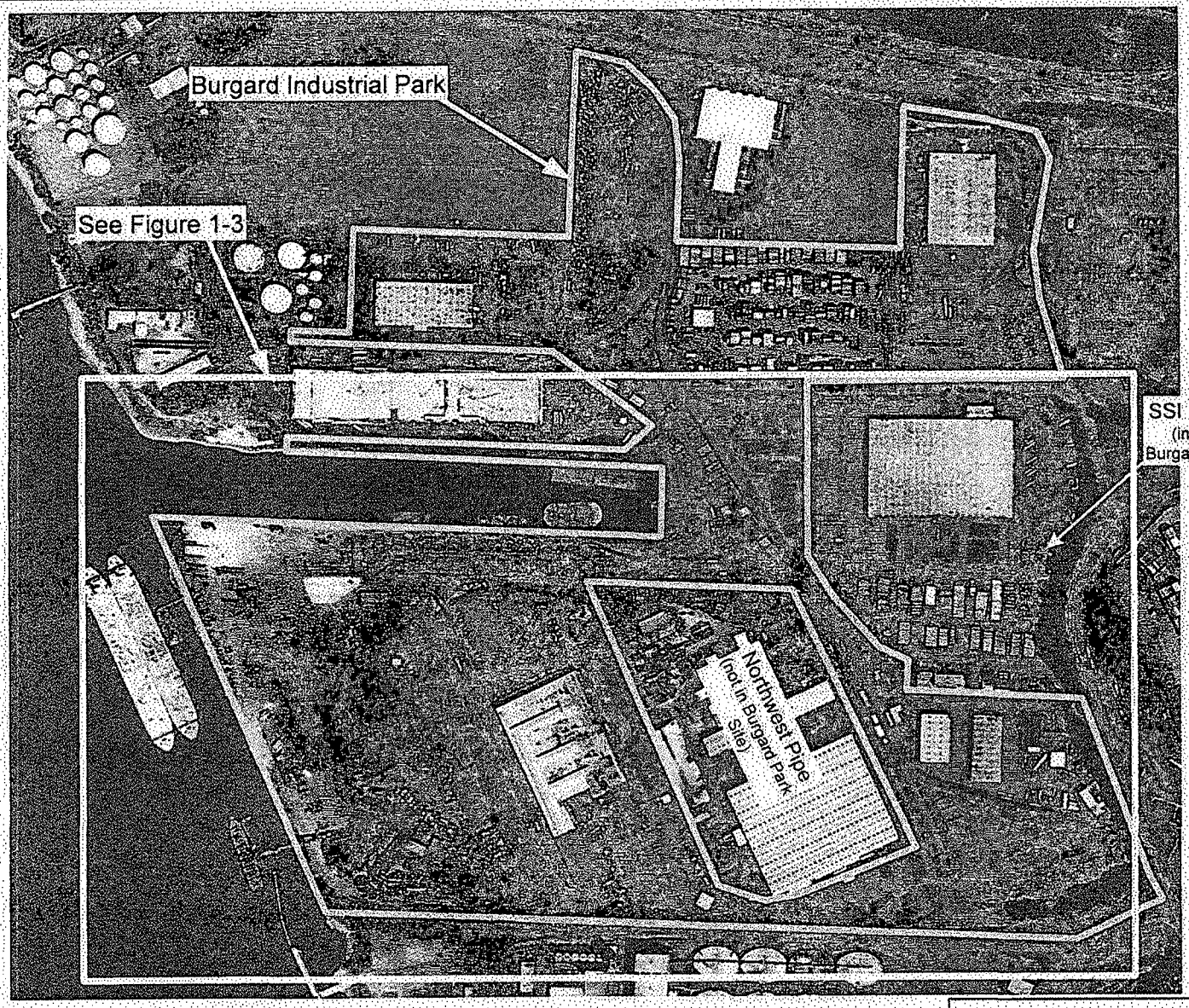
SCHN0020465B



N

Approximate Scale

600 Feet

Figure 1-2
July 2002 Aerial Photograph
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204659

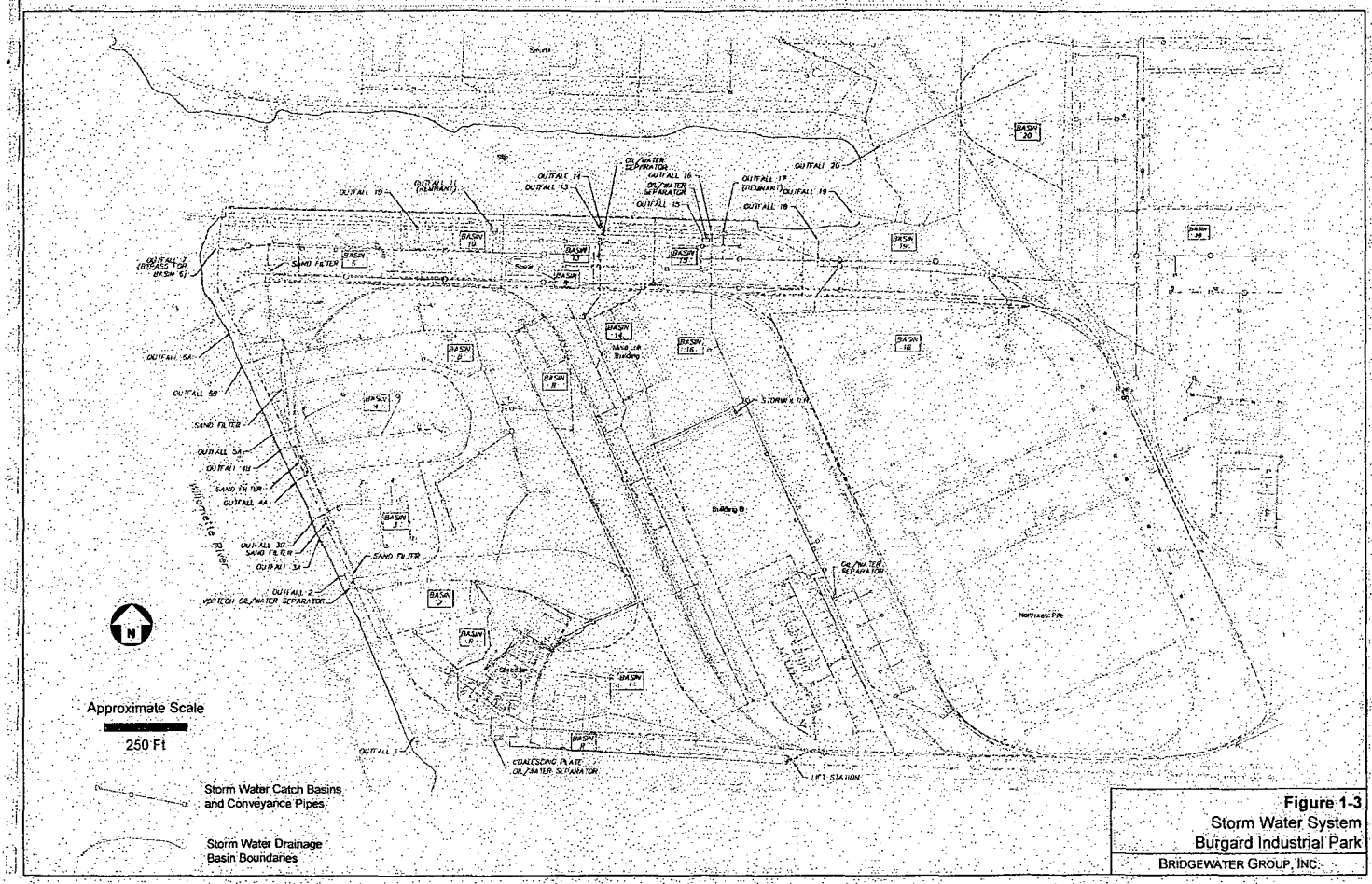
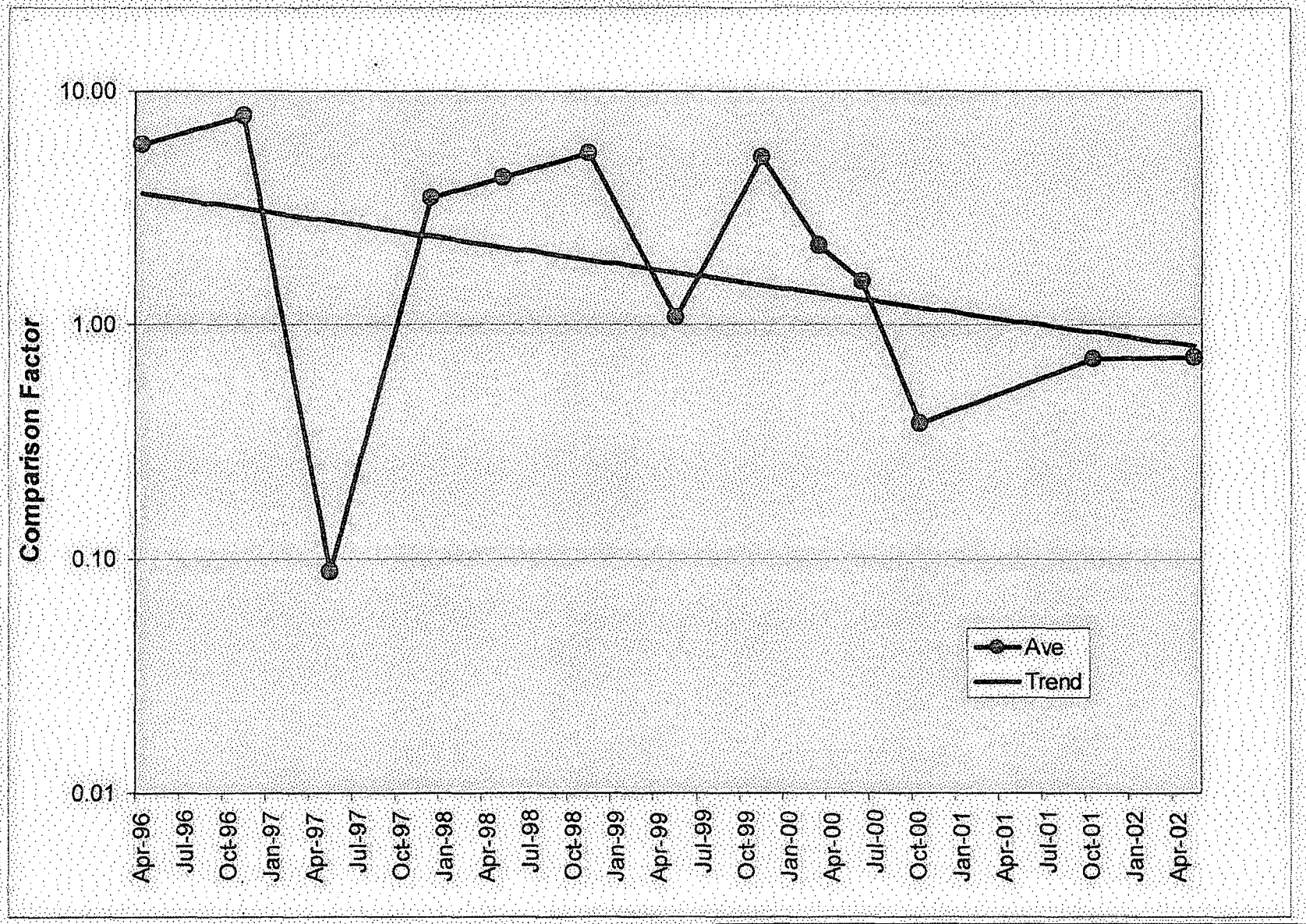


Figure 1-3
Storm Water System
Burgard Industrial Park
BRIDGEWATER GROUP, INC.

SCHN00204660



$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-1
Basin 2 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204661

$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-2
Basin 3 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

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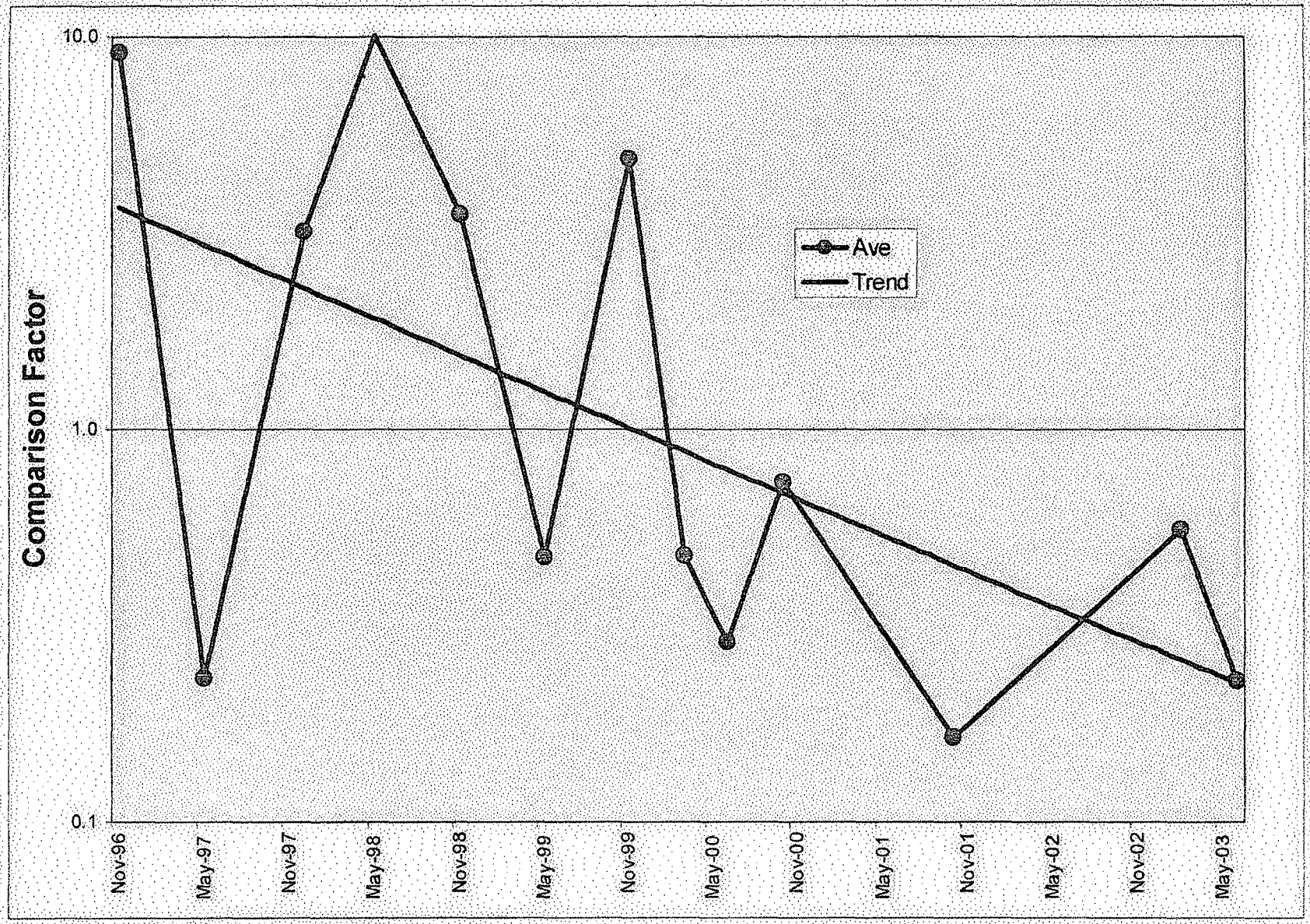
SCHN00204662



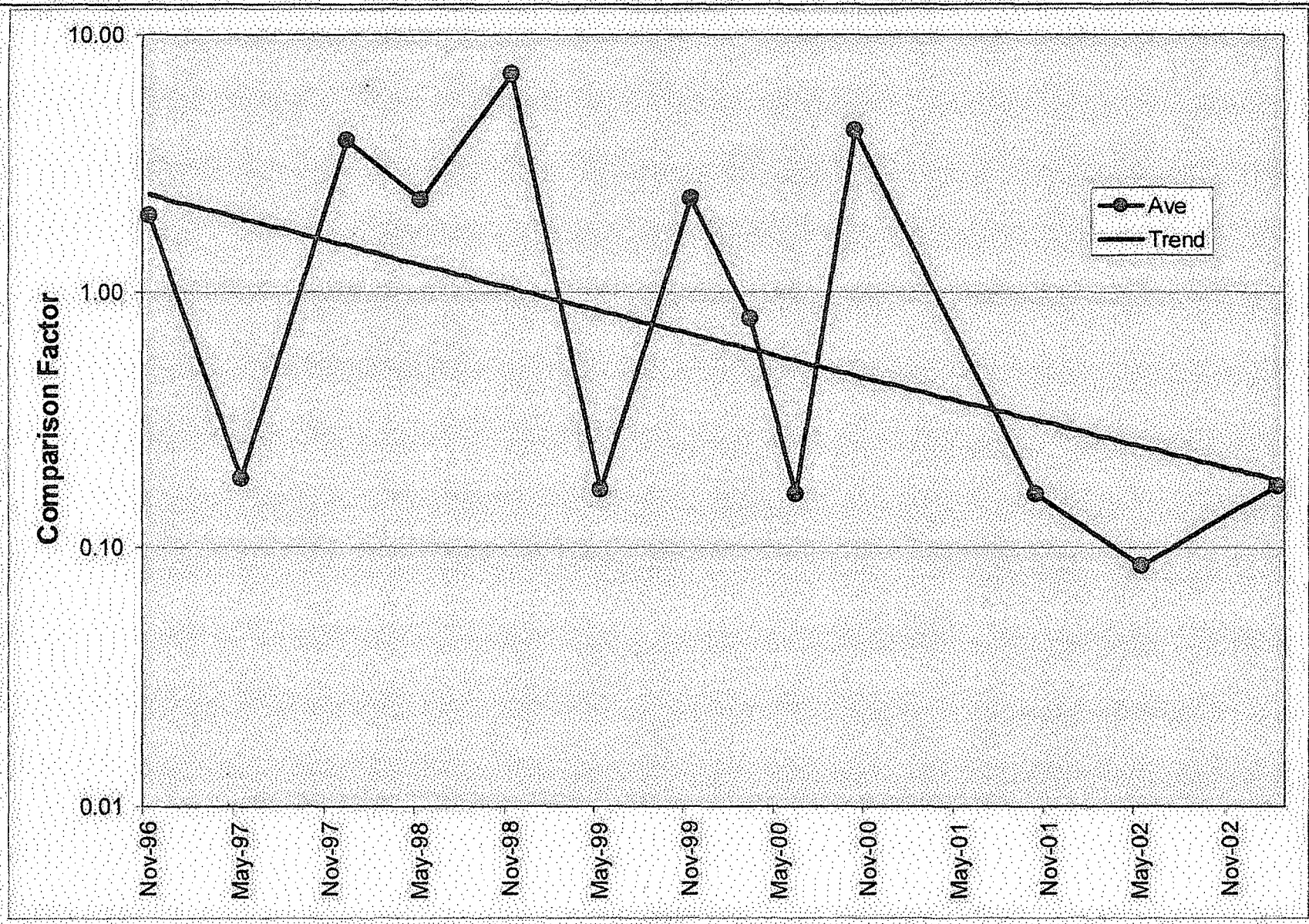
$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-3
Basin 4 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020466 3



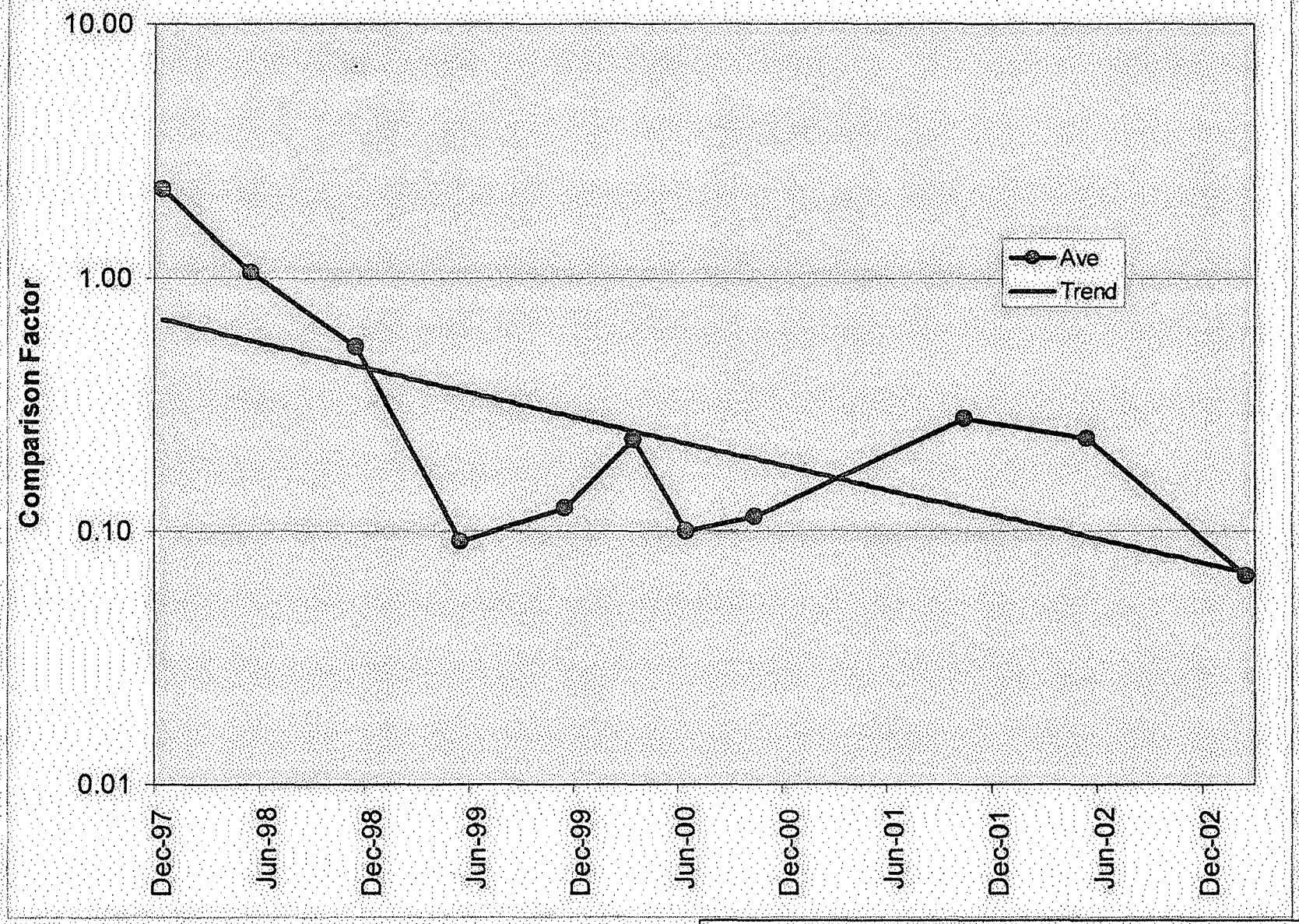
$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-4
Basin 5 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204664



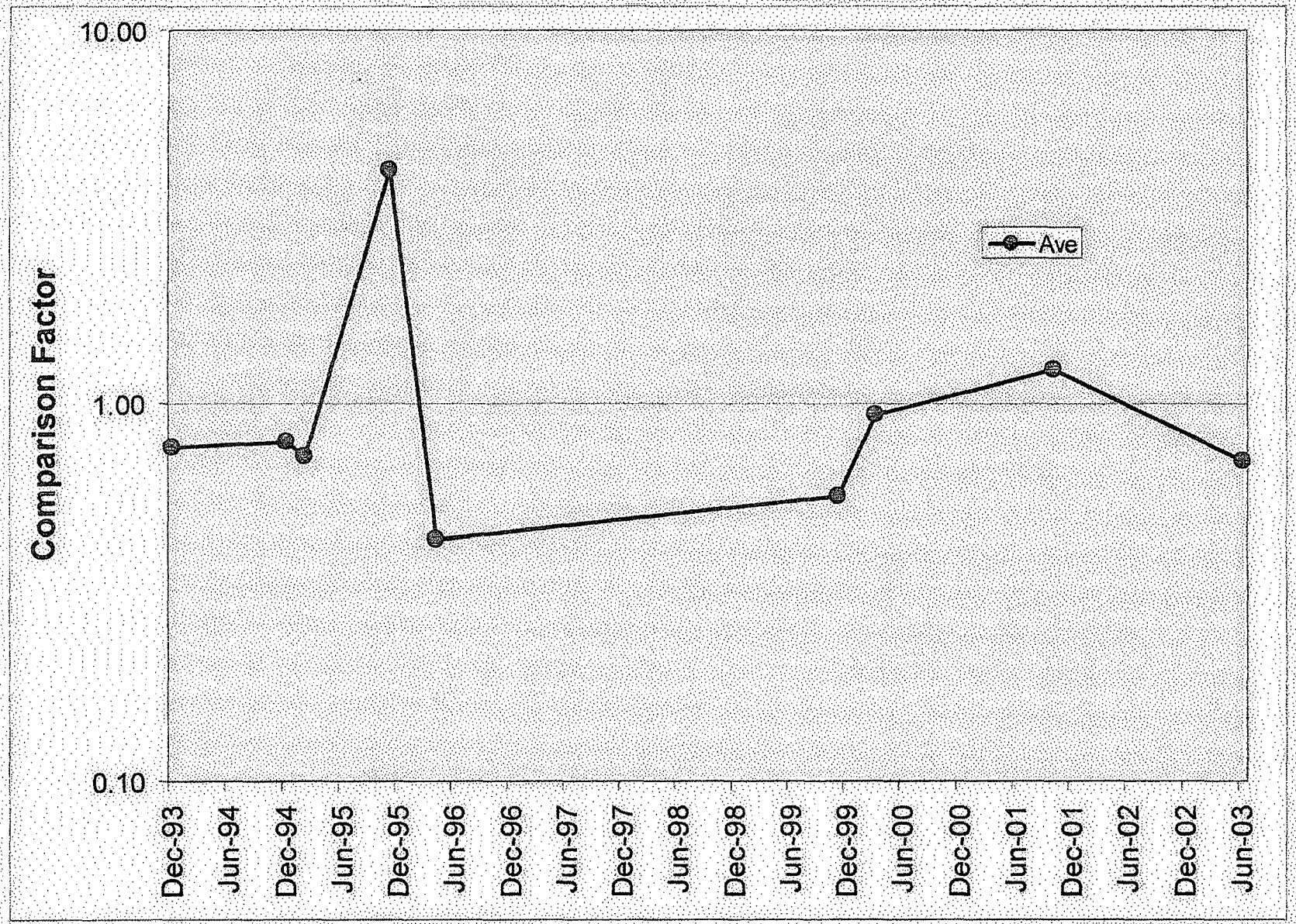
$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-5
Basin 6 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204665



$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-6

Basin 14 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

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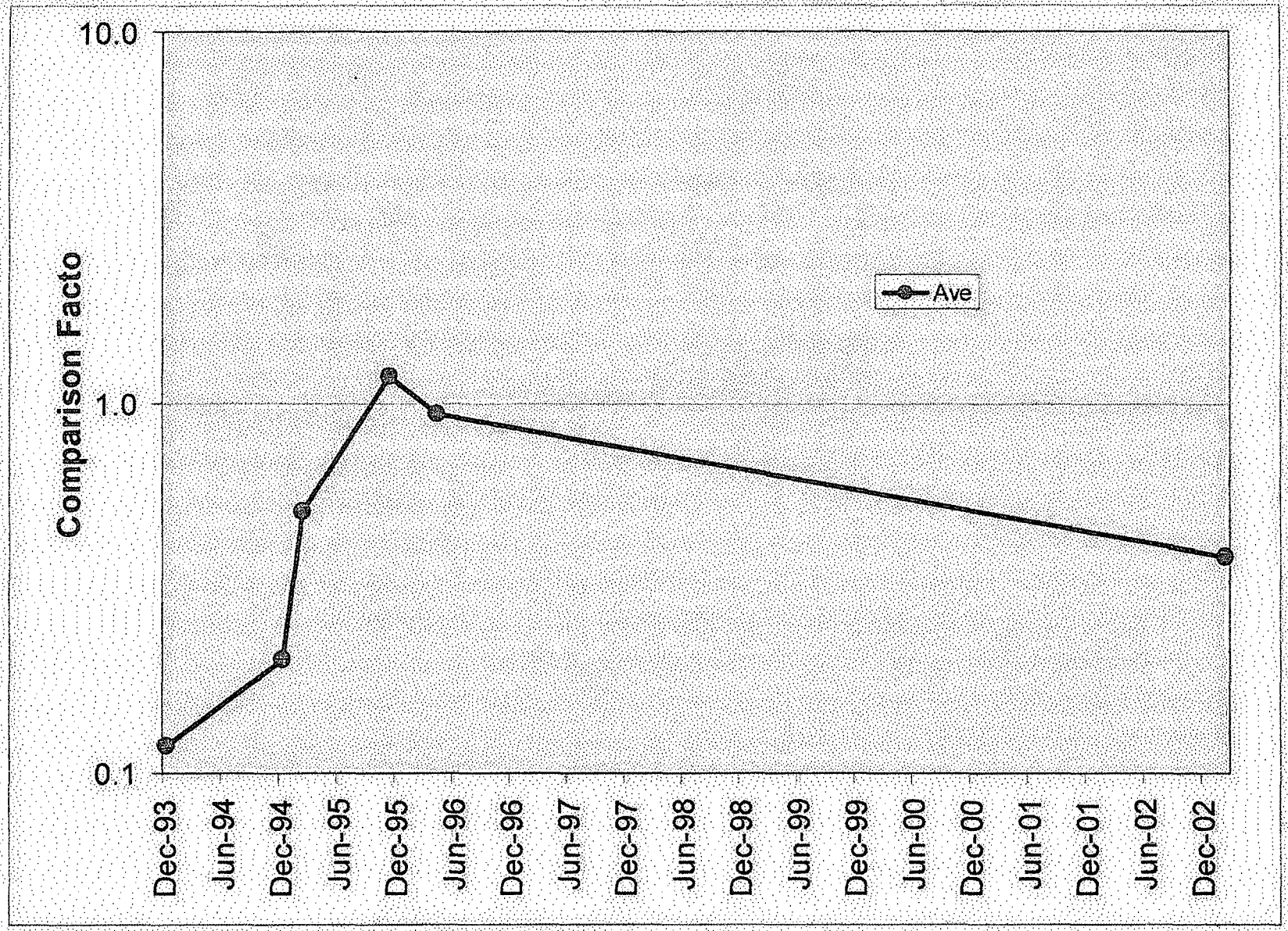
SCHN00204666



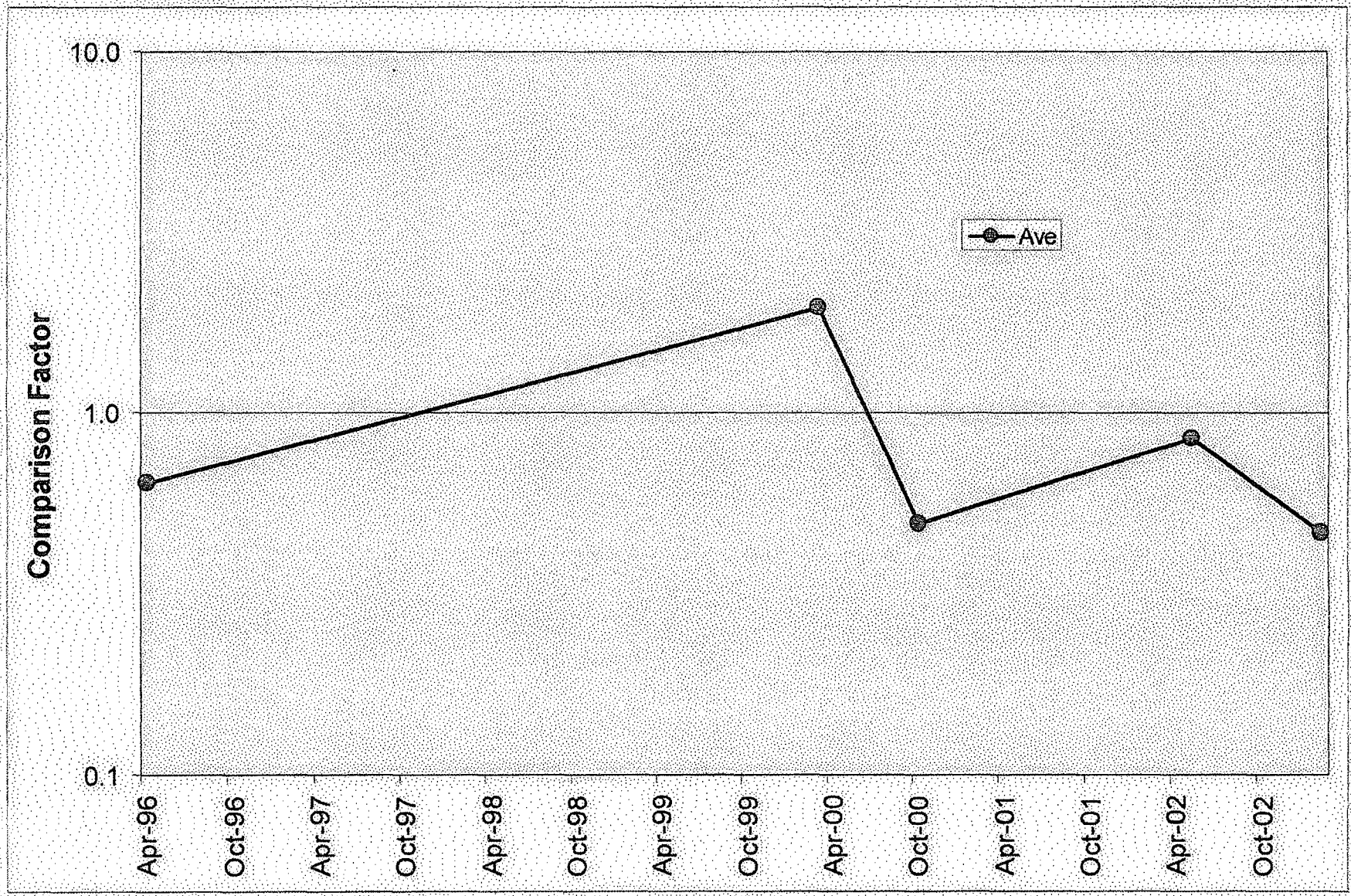
$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-7
Basin 15 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0204667



$$\text{Comparison Factor} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-8
Basin 16 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

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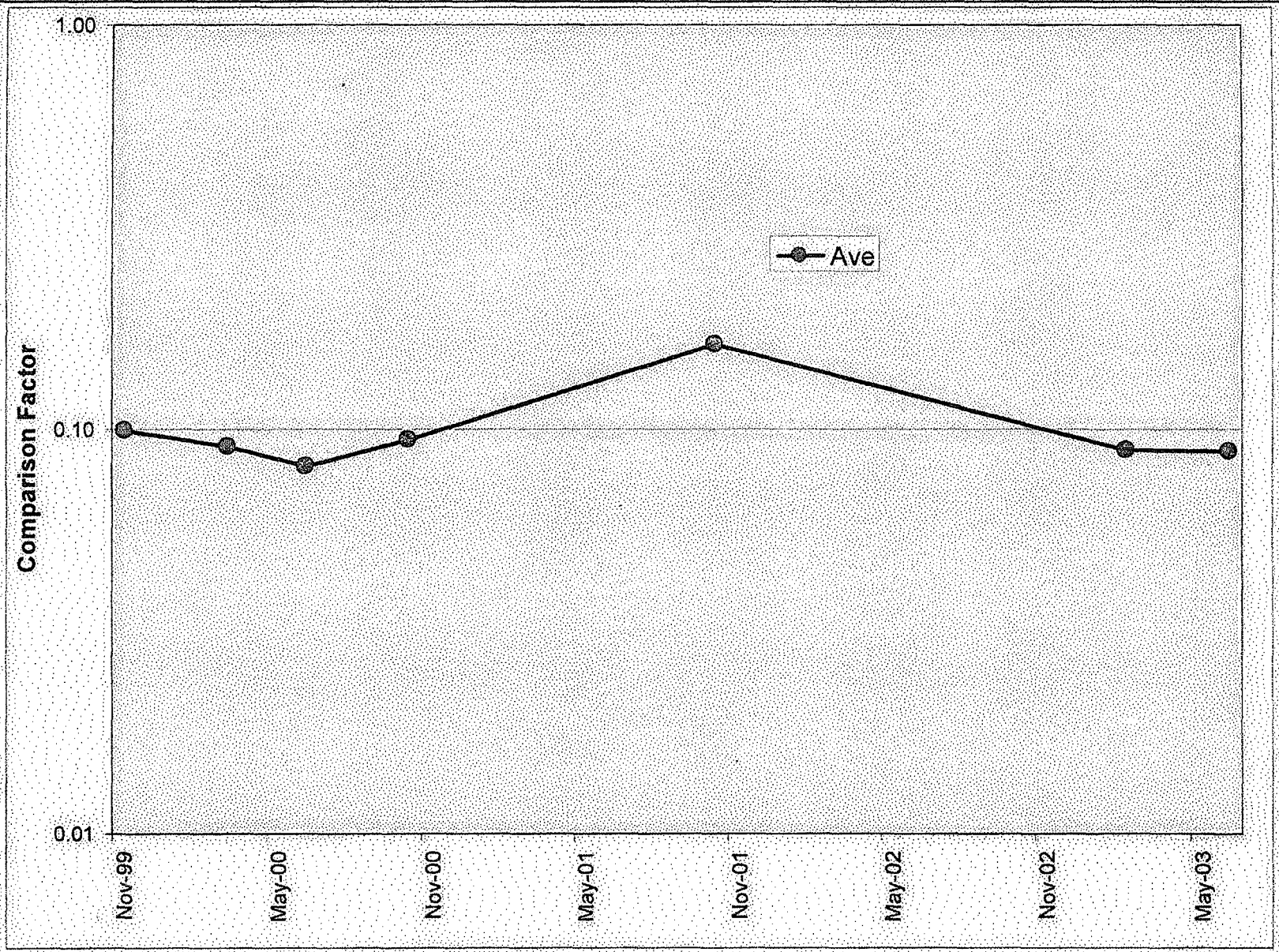
SCHN00204668



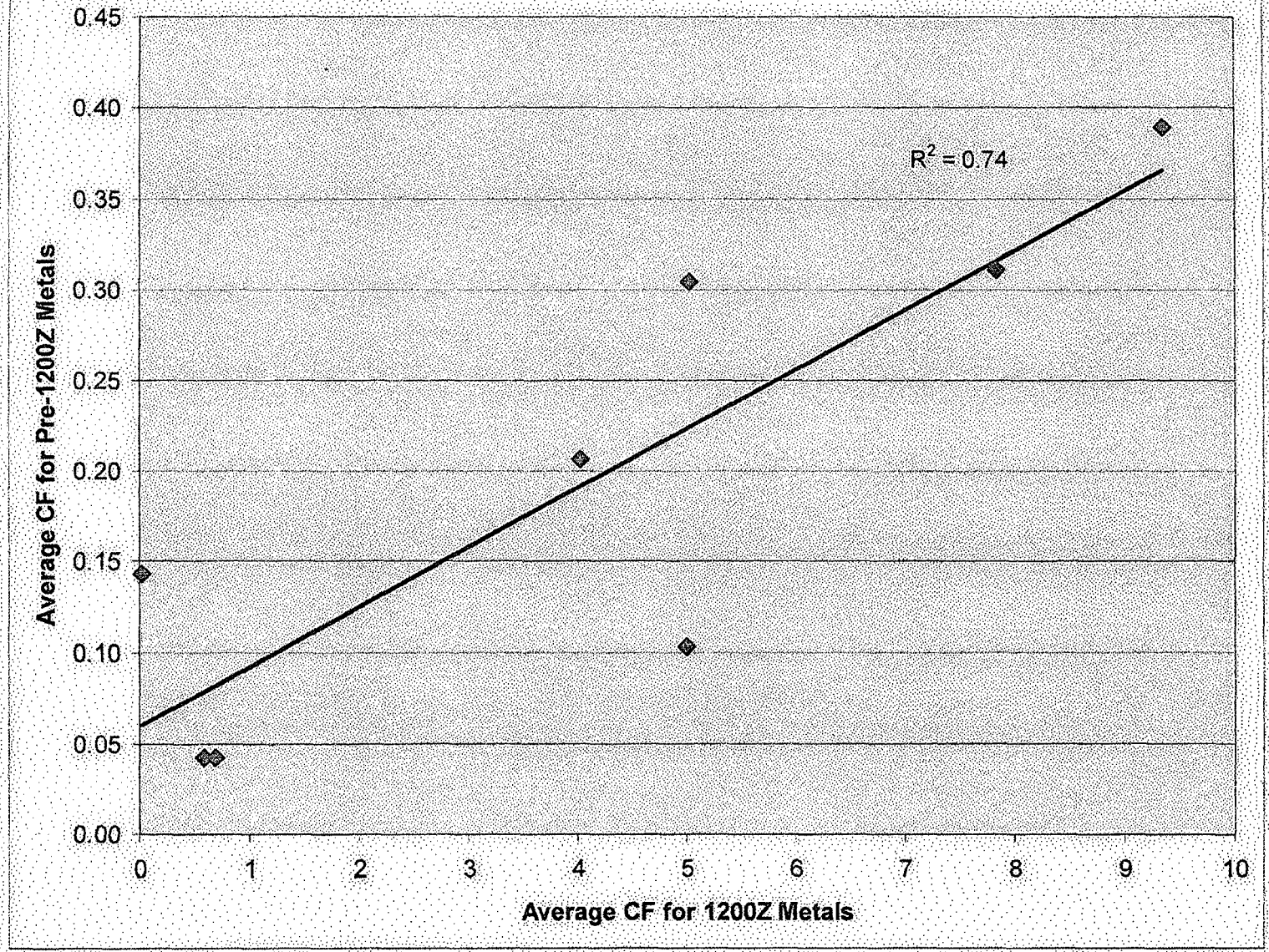
Comparison Factor = $\frac{\text{Measured Concentration}}{\text{1200Z Benchmark}}$

Comparison Factor shown is average value across all 1200Z parameters

Figure 3-9
Basin 20 Storm Water Benchmark Comparison Factors
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020469



Samples collected 1993 through 1997

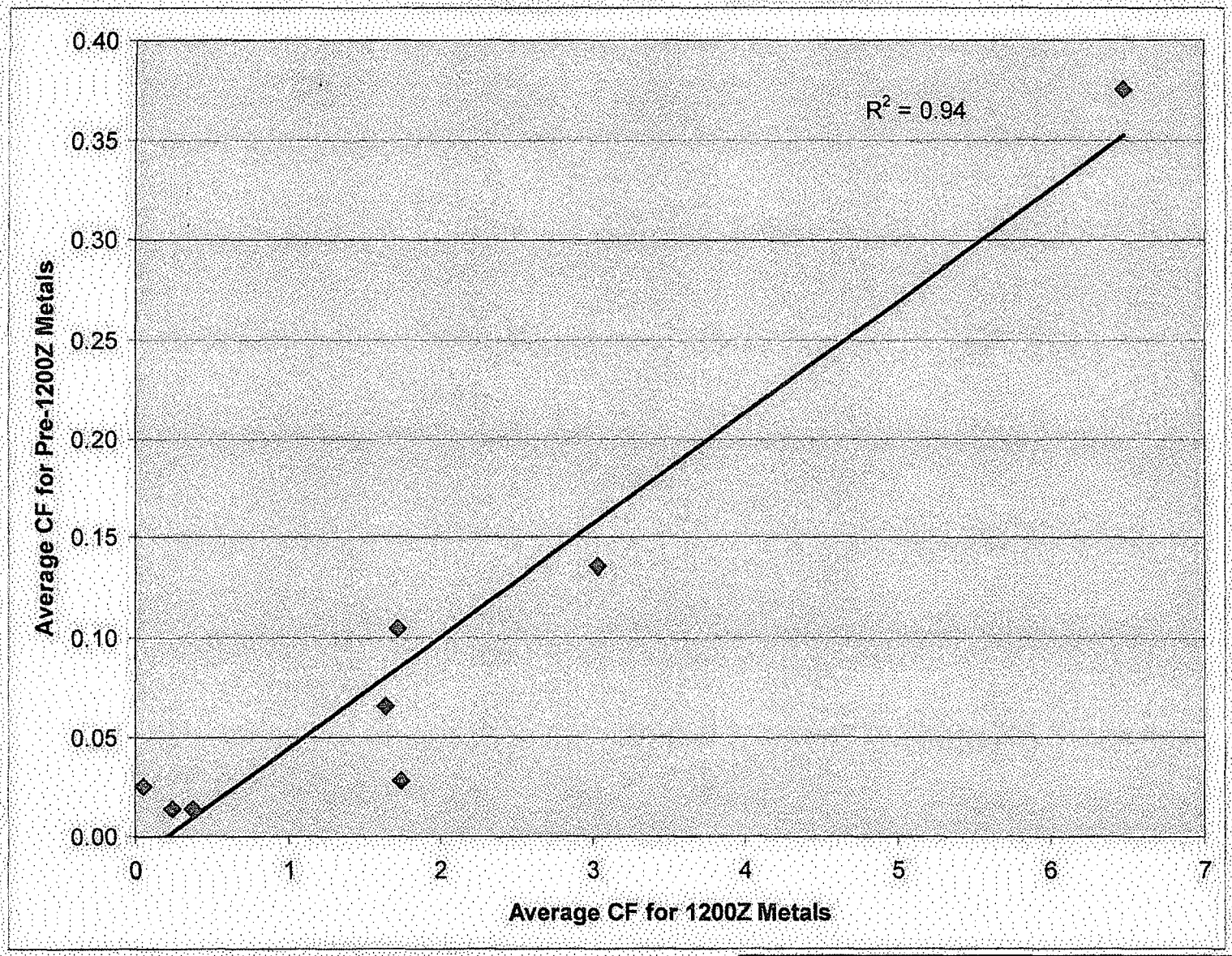
Comparison Factor (CF) = $\frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$

Comparison Factor shown is average value for monitored metals

Figure 4-1
Basin 2 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020470



Samples collected 1993 through 1997

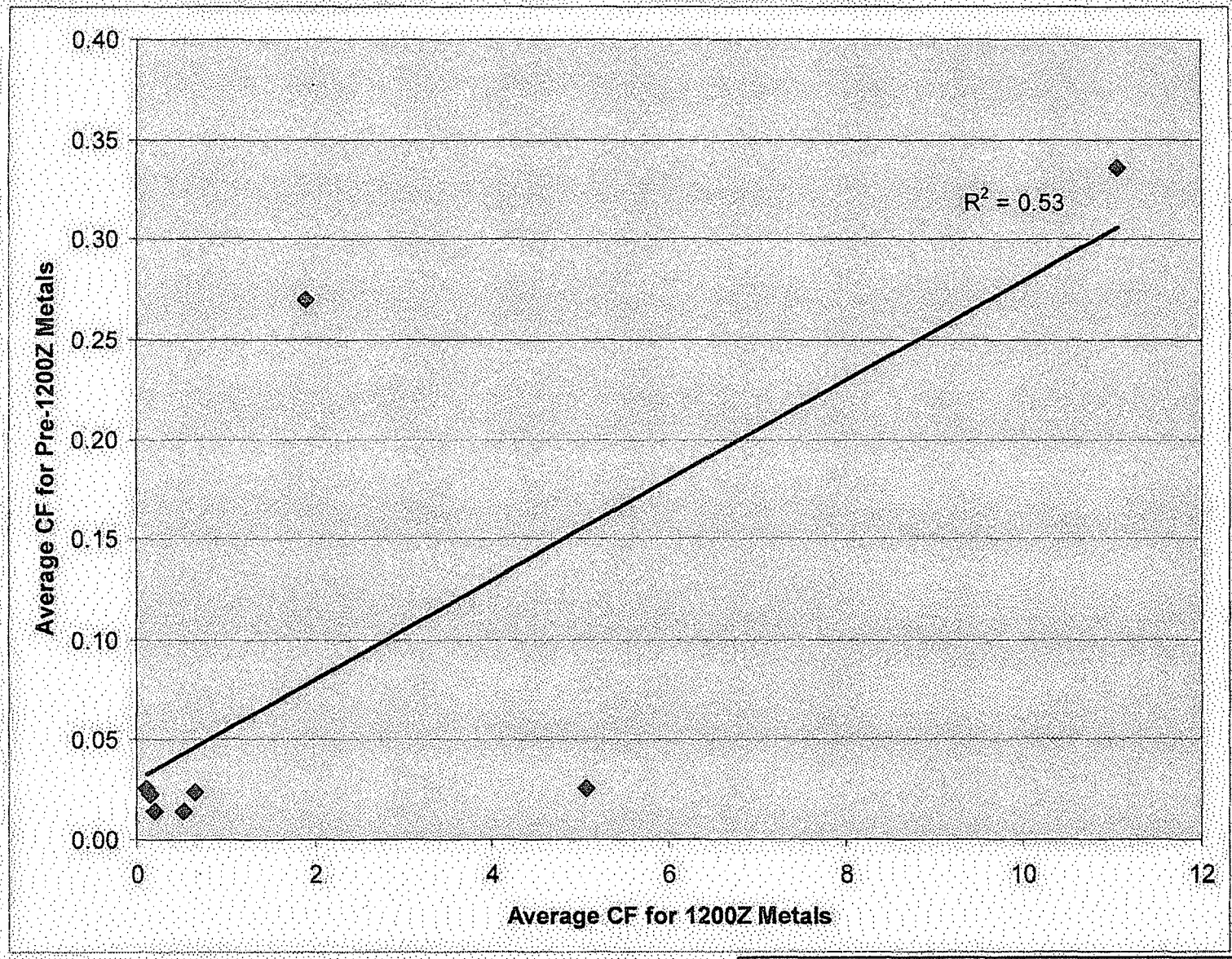
$$\text{Comparison Factor (CF)} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$$

Comparison Factor shown is average value for monitored metals

Figure 4-2
Basin 3 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020467



Samples collected 1993 through 1997

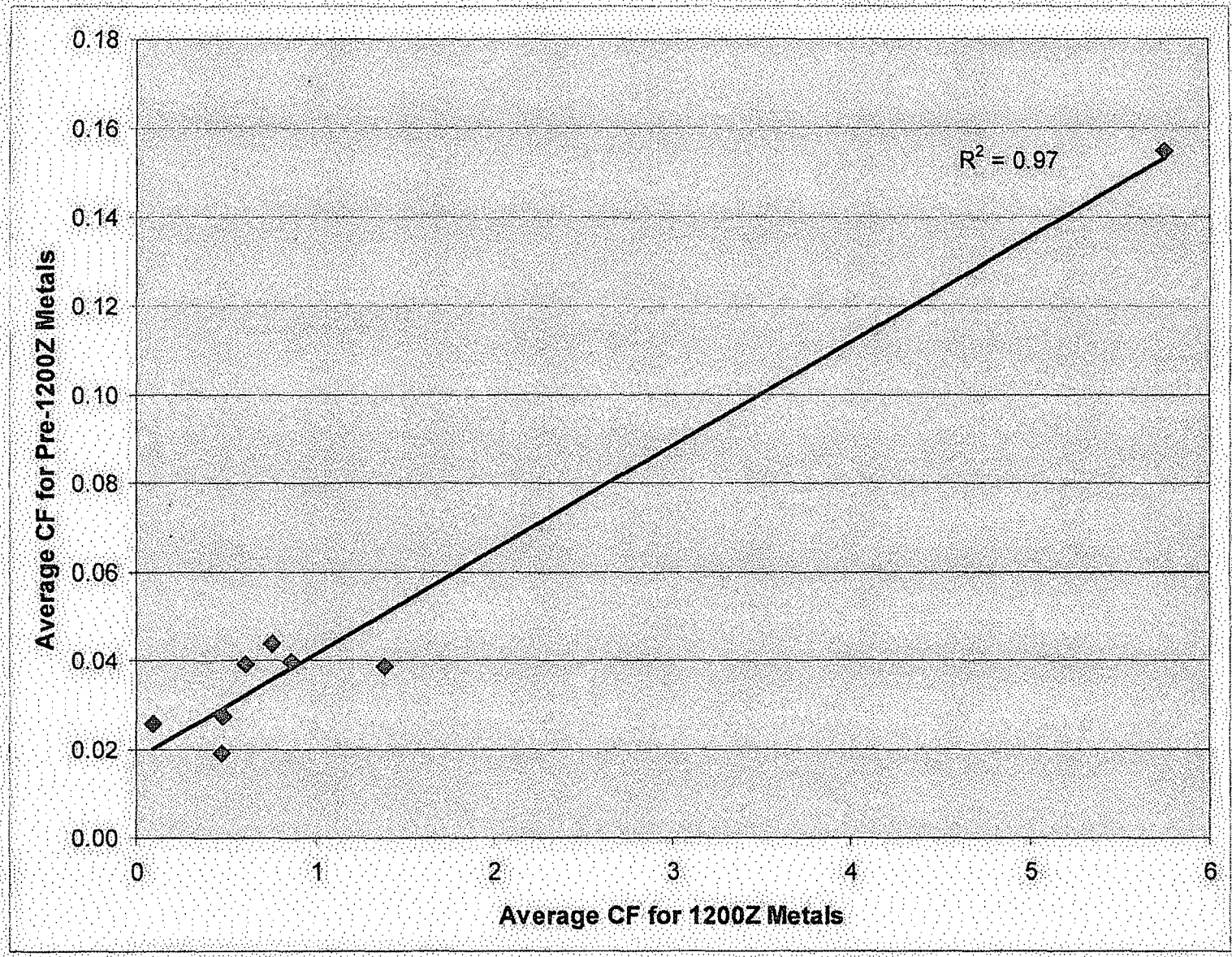
Comparison Factor (CF) = $\frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$

Comparison Factor shown is average value for monitored metals

Figure 4-3
Basin 4 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020467Z



Samples collected 1993 through 1997

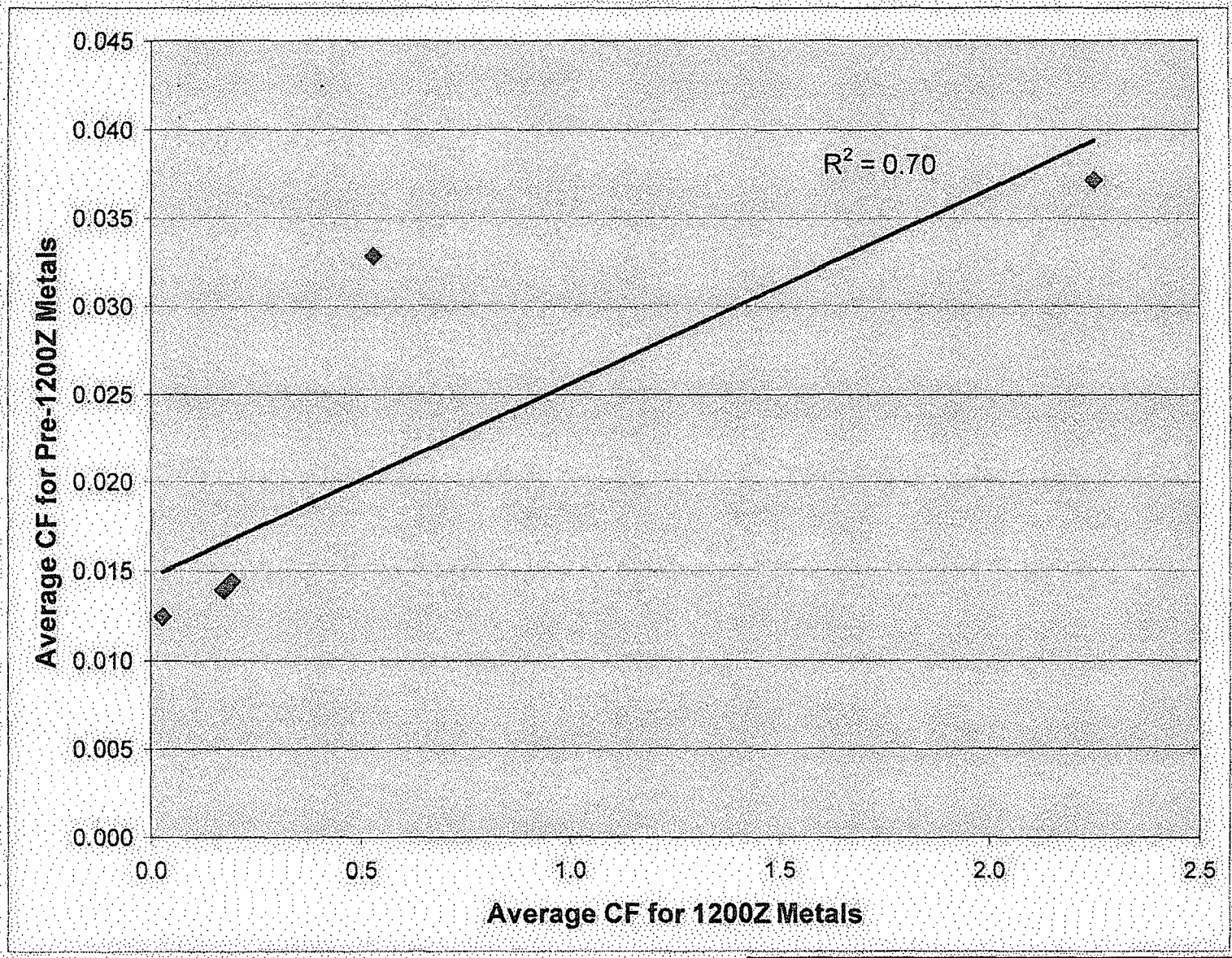
$$\text{Comparison Factor (CF)} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$$

Comparison Factor shown is average value for monitored metals

Figure 4-4
Basin 5 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0204673



Samples collected 1993 through 1997

$$\text{Comparison Factor (CF)} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$$

Comparison Factor shown is average value for monitored metals

Figure 4-5
Basin 6 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

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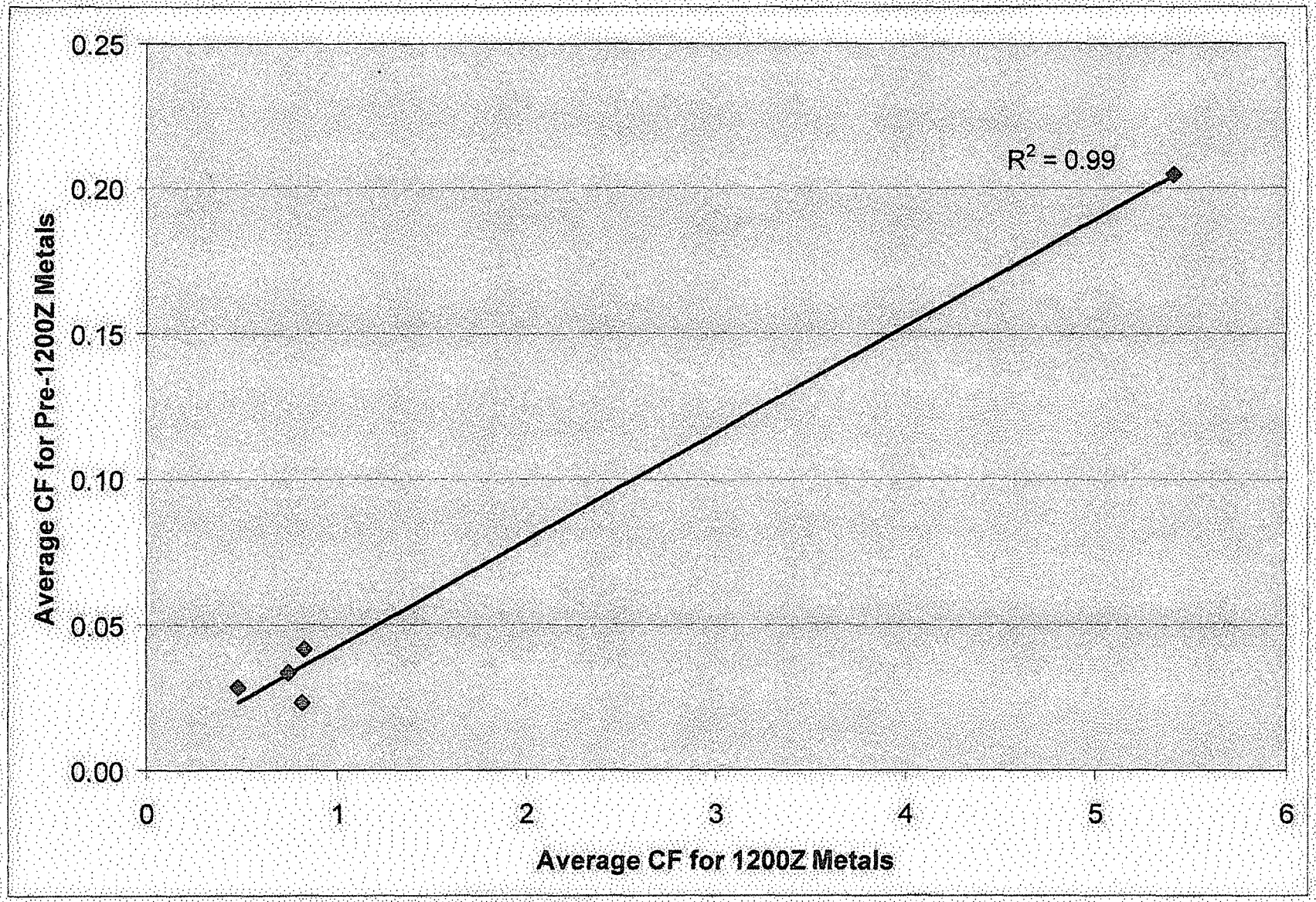
SCHN0020467 4



Samples collected 1993 through 1996

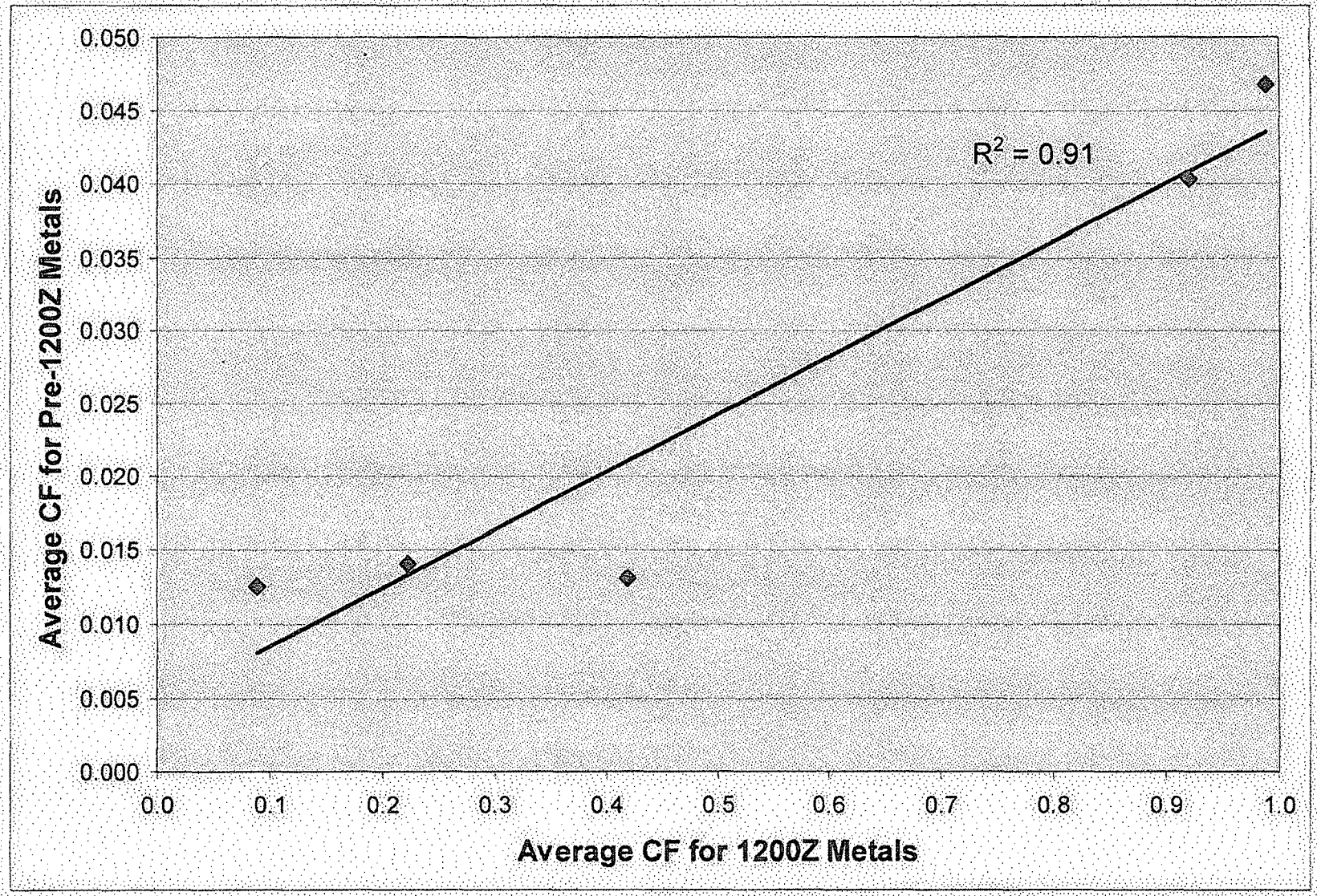
$$\text{Comparison Factor (CF)} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$$

Comparison Factor shown is average value for monitored metals

Figure 4-6
Basin 14 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204675



Samples collected 1993 through 1996

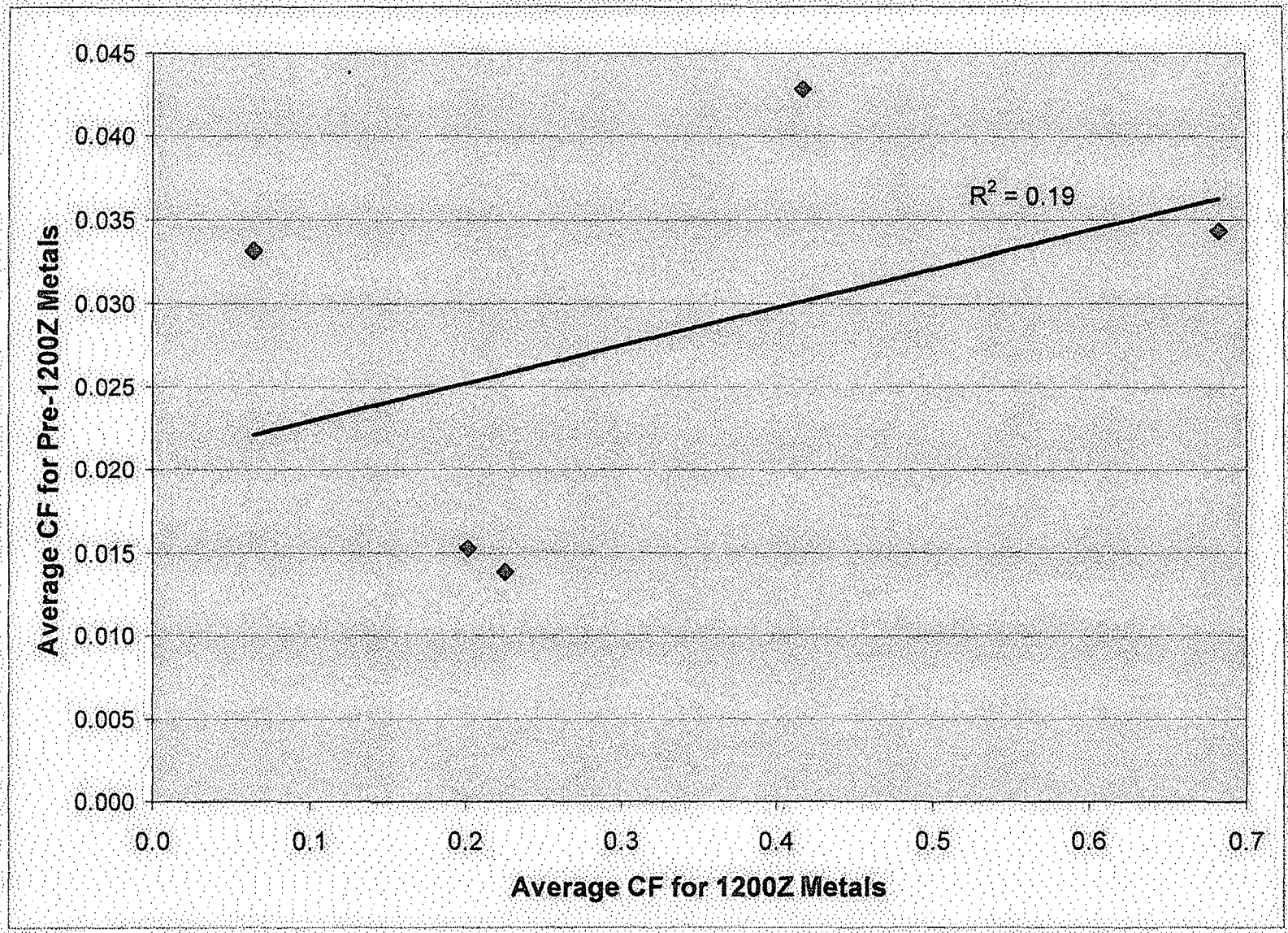
$$\text{Comparison Factor (CF)} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$$

Comparison Factor shown is average value for monitored metals

Figure 4-7
Basin 15 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020476



Samples collected 1993 through 1996

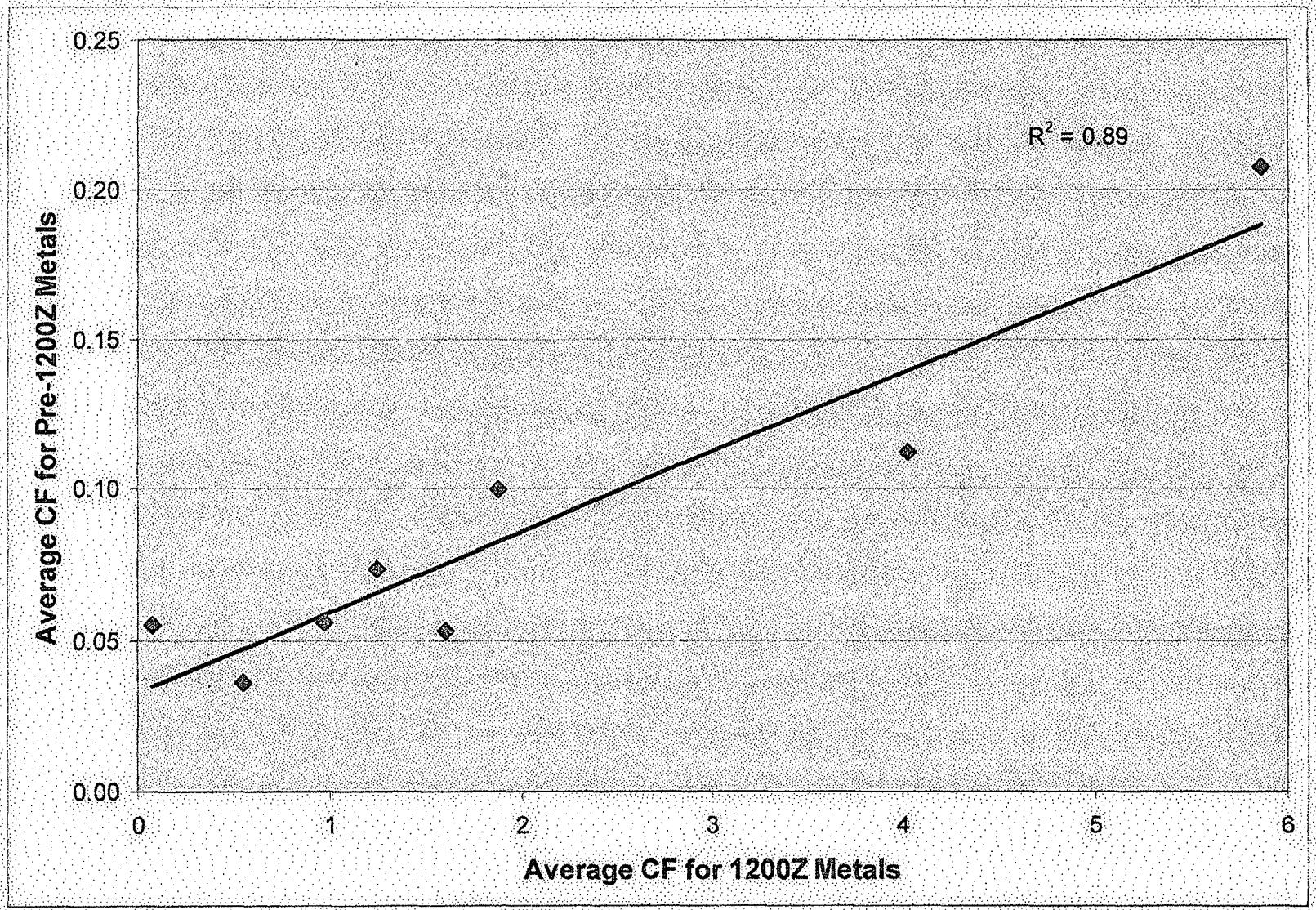
$$\text{Comparison Factor (CF)} = \frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$$

Comparison Factor shown is average value for monitored metals

Figure 4-8
Basin 16 Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020467 7



Samples collected 1993 through 1997

Comparison Factor (CF) = $\frac{\text{Measured Concentration}}{\text{1200Z Benchmark or 5 x AWQC}}$

Comparison Factor shown is average value for monitored metals

Figure 4-9
Storm Water Benchmark Comparison Factors
Correlation Between Pre-1200Z and 1200Z Metals
All Parameters Across All Basins
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN0020467B

BRIDGEWATER GROUP, INC.

March/April 2003 Groundwater Monitoring Results Burgard Industrial Park

TO: Alicia Voss/DEQ

COPY: Mat Cusma/Schnitzer

FROM: Ross Rieke/Bridgewater Group

DATE: May 28, 2003

This memorandum presents the results of the groundwater monitoring performed in March and April 2003 at the Burgard Industrial Park in Portland, Oregon (Figure 1 and Figure 2). The groundwater monitoring was performed in accordance with the March 17, 2003, *Revised Groundwater Monitoring Plan* prepared for the Burgard site. As specified in the groundwater monitoring plan, water levels were measured in all seven groundwater monitoring wells on the Burgard site and groundwater samples were collected from six of the monitoring wells (MW-1 through MW-5 and MW-7). Figures 3 and 4 show the groundwater monitoring well locations.

Groundwater Elevations

Groundwater elevations were measured in the groundwater monitoring wells on the Burgard site on March 23, 2003, April 15, 2003, and April 28, 2003. Table 1 presents the measured depths to water and the corresponding groundwater elevations. Table 1 also shows the Willamette River stage elevation during the times of the groundwater elevation measurements. The groundwater and river stage elevations are consistent with a general groundwater flow toward the river.

Chemical Analysis of Groundwater Samples

The groundwater samples were collected on March 23, 2003, from MW-1, MW-2, MW-3, MW-5, and MW-7 and submitted to North Creek Analytical for chemical analysis. The samples were analyzed in accordance with the groundwater monitoring plan except that the sample from MW-3 was inadvertently analyzed for polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270SIM rather than for semi-volatile organic compounds (SVOCs) using EPA Method 8270 as prescribed by the monitoring plan. A groundwater sample was not collected on March 23, 2003 from MW-4 because the well monument had been damaged and was not accessible at the time of sampling.

After MW-4 was repaired and redeveloped (see below), a groundwater sample was collected from MW-4 on April 15, 2003.

A groundwater sample was collected from MW-3 on April 28, 2003 and submitted to North Creek Analytical for SVOC analysis.

The results of the chemical analysis are presented in reports from North Creek Analytical dated April 30, 2003, and May 16, 2003. Review of the laboratory quality assurance and quality control (QA/QC) data, including holding times, surrogate recoveries, method blanks,

laboratory duplicates, matrix spikes, and matrix spike duplicates, did not note any issues requiring corrective action.

Table 2 presents the results for all VOCs that have been detected at the Burgard site. Table 3 presents the results for all PAHs and for all SVOCs that have been detected at the site. All analytes not shown on Tables 2 or 3 have not been detected in any of the groundwater samples. As in the earlier sampling event, the concentration of PCE in the sample from MW-1 in the most recent round of sampling is greater than the EPA ambient water quality criteria. Also consistent with the earlier sampling event, the PCE concentration in the groundwater sample collected from between MW-1 and the Willamette River (MW-2) is less than the EPA ambient water quality criteria. 3,4-Methylphenol was not detected in the groundwater sample from MW-3.

Table 4 and Table 5 present the results for total and dissolved metals, respectively. The measured arsenic concentrations are consistent with those measured in the previous sampling rounds. Somewhat higher concentrations of total copper, lead, and zinc were measured in the groundwater samples from MW-2, MW-3 and MW-7. However, the total zinc concentration and the dissolved copper and lead concentrations in all of these samples are well below their respective EPA Ambient Water Quality Criteria and the DEQ Level II Screening Level Values.

Repair and Redevelopment of MW-4

Monitoring well MW-4 was covered with stored product when the original sampling was performed on March 23, 2003. Upon subsequently uncovering the well, it was noted that the well monument was damaged. On April 11, 2003, the monument and surrounding concrete base were removed and a new monument and new concrete base installed, all the while ensuring that the well casing was not damaged or compromised. To ensure sufficient spacing between the top of the well casing and the new monument, 0.10 foot of casing was cut off the top of the well casing. Thus, the reference elevation for the top of the casing decreased 0.10 foot (see Table 1).

The well was then surged with a surge plug and rod for several minutes. After surging, about 20 gallons (or about 20 casing volumes based on the measured height of the water column in the well) of water were pumped from the well while monitoring pH and conductivity. The water initially pumped from the well was turbid but quickly (within the first two gallons) cleared up and relatively clear water was purged for most of the time. The pH and conductivity stabilized after about 9 gallons and remained within about 2 percent thereafter.

Groundwater Monitoring Schedule

In accordance with the DEQ-approved groundwater monitoring plan, the groundwater elevations will be measured in all seven groundwater monitoring wells in June 2003. Groundwater sampling and analysis will next be performed in September or October 2003.

TABLES

Table 1
Groundwater Elevations in Monitoring Wells
Burgard Industrial Park

Monitoring Well	Ground Surface Elevation (ft)	Top of Casing Elevation (ft)	Date	Depth (ft)	GW Elev (ft) COP Datum
MW-01	28.40	28.02	1/27/2002	18.05	10.0
			3/23/2003	18.53	9.5
			4/15/2003	18.21	9.8
			4/28/2003	17.79	10.2
MW-02	27.80	27.39	1/27/2002	16.46	10.9
			3/23/2003	16.63	10.8
			4/15/2003	17.36	10.0
			4/28/2003	17.15	10.2
MW-03	27.60	27.27	1/27/2002	17.65	9.6
			3/23/2003	17.59	9.7
			4/15/2003	nm	nm
			4/28/2003	16.91	10.4
MW-04	28.40	28.03	1/27/2002	16.99	11.0
			3/23/2003	nm	nm
		27.93	4/15/2003	17.93	10.0
			4/28/2003	17.52	10.4
MW-05	28.80	28.34	1/27/2002	17.47	10.9
			3/23/2003	17.83	10.5
			4/15/2003	18.68	9.7
			4/28/2003	17.35	11.0
MW-06	28.80	28.31	1/27/2002	11.89	16.4
			3/23/2003	12.37	15.9
			4/15/2003	12.13	16.2
			4/28/2003	12.31	16.0
MW-07	35.88	35.47	1/27/2002	25.77	9.7
			3/23/2003	25.41	10.1
			4/15/2003	24.98	10.5
			4/28/2003	24.62	10.9

		Gauge[1] (ft)	COP Datum[2] (ft)
Willamette River	1/27/2002	8.75	11.68
	3/23/2003	7.95	10.88
	4/15/2003	7.00	9.93
	4/28/2003	6.40	9.33

1 - Willamette River gauge at Morrison Bridge
2 - COP Datum = Morrison St. Bridge Guage + 2.93

Table 2
Concentrations in Groundwater Samples
Volatile Organic Compounds
Burgard Industrial Park
All results in ug/l

Probe/ Well	Location	Date	cis-1,2,-Dichloroethe	Tetrachlorethene	1,1,1-Trichloroethan	Trichloroethene	Vinyl Chloride
MW01	Former NW Oil Tanks	1/28/2002	9.13	32.7	1 U	4.5	1.23
		3/23/2003	14.3	23.2	1 U	20.1	1.18
MW02	Shoreline, north end of site	1/28/2002	2.78	6.68	1 U	8.06	1 U
		3/23/2003	1.97	7.76	1 U	8.90	1 U
MW03	Shoreline, middle of site	1/27/2002	1 U	1 U	1 U	1 U	1 U
MW04	Shoreline, middle of site	1/27/2002	1 U	1 U	1 U	1 U	1 U
MW05	Shoreline, south end of site	1/27/2002	1 U	1 U	1 U	1 U	1 U
MW06	Outfall 1 plug area	1/28/2002	1 U	1 U	1 U	1 U	1 U
MW07	Southeast area	1/28/2002	1 U	1.91	1 U	1 U	1 U
		3/23/2003	1 U	1 U	1 U	1.27	1 U
PP02	WMW compressor	12/18/2001	1 U	1 U	1 U	1 U	1 U
PP03	Boydston oil storage area	12/18/2001	1 U	1 U	1 U	1 U	1 U
PP04	PBM wash pad	12/18/2001	1 U	1 U	1.23	1 U	1 U
PP05	Former NW Oil Tanks	12/18/2001	1 U	1 U	1 U	1 U	1 U
PW01	UST Pad	1/28/2002	1 U	1 U	1 U	1 U	1 U
PW03	PBM wash pad	1/28/2002	1 U	1.67	1 U	1.7	1 U
PW06	Southwest corner of site	1/27/2002	1 U	1 U	1 U	1 U	1 U
EPA Ambient Water Quality Criteria				8.85		81	525
DEQ Level II Surface Water SLV				240	11	21.9	1300

U - Not detected at noted reporting limit
"-" - Not analyzed
All VOCs not shown in table are not detected.

Table 3
Concentrations in Groundwater Samples
PAHs and Selected Semi Volatile Organic Compounds
Burgard Industrial Park
All results in ug/l

Probe/ Well	Location	Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	3,4-Methylphenol	Naphthalene	Phenanthrene	Pyrene
MW01	Former NW Oil Tanks	1/28/2002	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	-	0.1 U	0.1 U	-
MW02	Shoreline, north end of site	1/28/2002	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	5 U	5 U
MW03	Shoreline, middle of site	1/27/2002	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	18.4	2 U	5 U	5 U
		4/14/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		3/23/2003	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.10 U	-	0.10 U	0.10 U	0.10 U
		4/28/2003	-	-	-	-	-	-	-	-	-	-	-	-	-	10 U	-	-	-
MW04	Shoreline, middle of site	1/27/2002	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	5 U	5 U
MW05	Shoreline, south end of site	1/27/2002	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	5 U	5 U
MW06	Outfall 1 plug area	1/28/2002	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2 U	5 U	5 U
MW07	Southeast area	1/28/2002	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	-	0.1 U	0.1 U	0.1 U
PW01	UST Pad	1/28/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 U	-	-
PW03	PBM wash pad	1/28/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 U	-	-
PW06	Southwest corner of site	1/27/2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 U	-	-
EPA Ambient Water Quality Criteria			2700		1E+05	0.05	0.05	0.049		0.049	0.049	0.049	370	14000	0.049				11000
DEQ Level II Surface Water SLV			520		13	0.03	0.01						6.16	3.9			620	6.3	

U - Not detected at noted reporting limit
"-" - Not analyzed
All SVOCs not shown in table are not detected.

SCHN00204684

Table 4
Concentrations in Groundwater Samples
Total Metals
Burgard Industrial Park
All results in ug/l

Probe/ Well	Location	Date	Total Antimony	Total Arsenic	Total Barium	Total Cadmium	Total Chromium	Total Copper	Total Lead	Ttotal Mercury	Total Nickel	Total Zinc
MW01	Former NW Oil Tanks	3/23/2003	1.0 U	1.04	41.2	1.0 U	1.0 U	2.0 U	1.0 U	0.2 U	6.82	5.0 U
MW02	Shoreline, north end of site	1/28/2002	1.0 U	1.07	23.3	1.0 U	1.96	2.0 U	1.0 U	0.2 U	2.0 U	10.6
		3/23/2003	1.0 U	1.58	37.8	1.0 U	1.43	3.66	3.57	0.2 U	2.0 U	29.5
MW03	Shoreline, middle of site	1/27/2002	1.0 U	30.8	148	1.0 U	1.61	2.0 U	1.0 U	0.20	5.78	7.1
		3/23/2003	1.0 U	41.1	159	1.0 U	10.3	24.6	12.2	0.23	13.6	46.6
MW04	Shoreline, middle of site	1/27/2002	1.0 U	1.92	47.2	1.0 U	1.30	2.0 U	1.0 U	0.2 U	12.3	5.2
MW05	Shoreline, south end of site	1/27/2002	1.0 U	1.0 U	13.0	1.0 U	1.57	2.3	1.0 U	0.2 U	2.3	11.2
		3/23/2003	1.0 U	1.0 U	9.61	1.0 U	1.0 U	2.0 U	1.0 U	0.2 U	2.0 U	5.0 U
MW06	Outfall 1 plug area	1/28/2002	1.0 U	1.0 U	33.1	1.0 U	1.61	2.0 U	1.0 U	0.2 U	8.6	8.8
MW07	Southeast area	1/28/2002	1.0 U	1.20	64.7	1.0 U	1.83	2.0 U	1.0 U	0.2 U	4.9	5.0 U
		3/23/2003	1.0 U	3.18	106	1.0 U	5.33	9.24	3.53	0.2 U	6.42	20.8
EPA Ambient Water Quality Criteria			4300	0.14				1300		0.05	4600	69000
DEQ Level II Surface Water SLV			1600	150		2.2	0.21	9	2.5	0.77	52	120

U - Not detected at noted reporting limit
"-" - Not analyzed

Table 5
Concentrations in Groundwater Samples
Dissolved Metals
Burgard Industrial Park
All results in ug/l

Probe/ Well	Location	Date	Dissolved Antimony	Dissolved Arsenic	Dissolved Barium	Dissolved Cadmium	Dissolved Chromium	Dissolved Copper	Dissolved Lead	Dissolved Mercury	Dissolved Nickel	Dissolved Selenium	Dissolved Silver	Dissolved Thallium	Dissolved Zinc
MW01	Former NW Oil Tanks	1/28/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
		3/23/2003	-	1 U	46.4	-	-	-	-	-	-	-	-	-	-
MW02	Shoreline, north end of site	1/28/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
		4/14/2002	-	6.3	-	-	1.1	-	-	-	-	-	-	-	-
		3/23/2003	-	1.0 U	27.4	-	1.0 U	-	1.0 U	-	-	-	-	-	-
MW03	Shoreline, middle of site	1/27/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
		4/14/2002	-	37.7	-	-	1.0 U	-	-	0.2 U	-	-	-	-	-
		3/23/2003	-	32.8	113	-	1.0 U	1.06	1.0 U	0.2 U	-	-	-	-	-
MW04	Shoreline, middle of site	1/27/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
		4/14/2002	-	11.4	-	-	1.0 U	-	-	-	-	-	-	-	-
		4/15/2003	-	6.29	77.6	-	-	-	-	0.2 U	-	-	-	-	-
MW05	Shoreline, south end of site	1/27/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
		4/14/2002	-	-	-	-	1.0 U	-	-	-	-	-	-	-	-
		3/23/2003	-	-	10.1	-	-	-	-	-	-	-	-	-	-
MW06	Outfall 1 plug area	1/28/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
		4/14/2002	-	-	-	-	1.0 U	-	-	-	-	-	-	-	-
MW07	Southeast area	1/28/2002	-	-	-	-	-	-	-	-	-	-	-	-	-
		4/14/2002	-	6.1	-	-	1.0 U	-	-	-	-	-	-	-	-
		3/23/2003	-	1.64	65.3	-	1.0 U	1.61	1.0 U	-	-	-	-	-	-
EPA Ambient Water Quality Criteria			4300	0.14				1300		0.05	4600	69000			
DEQ Level II Surface Water SLV			1600	150		2.2	0.21	9	2.5	0.77	52	120	0.12	40	120

U - Not detected at noted reporting limit
"-" - Not analyzed
Samples with total metal concentrations greater than EPA ambient water quality critiera analyzed for dissolved metals.

FIGURES

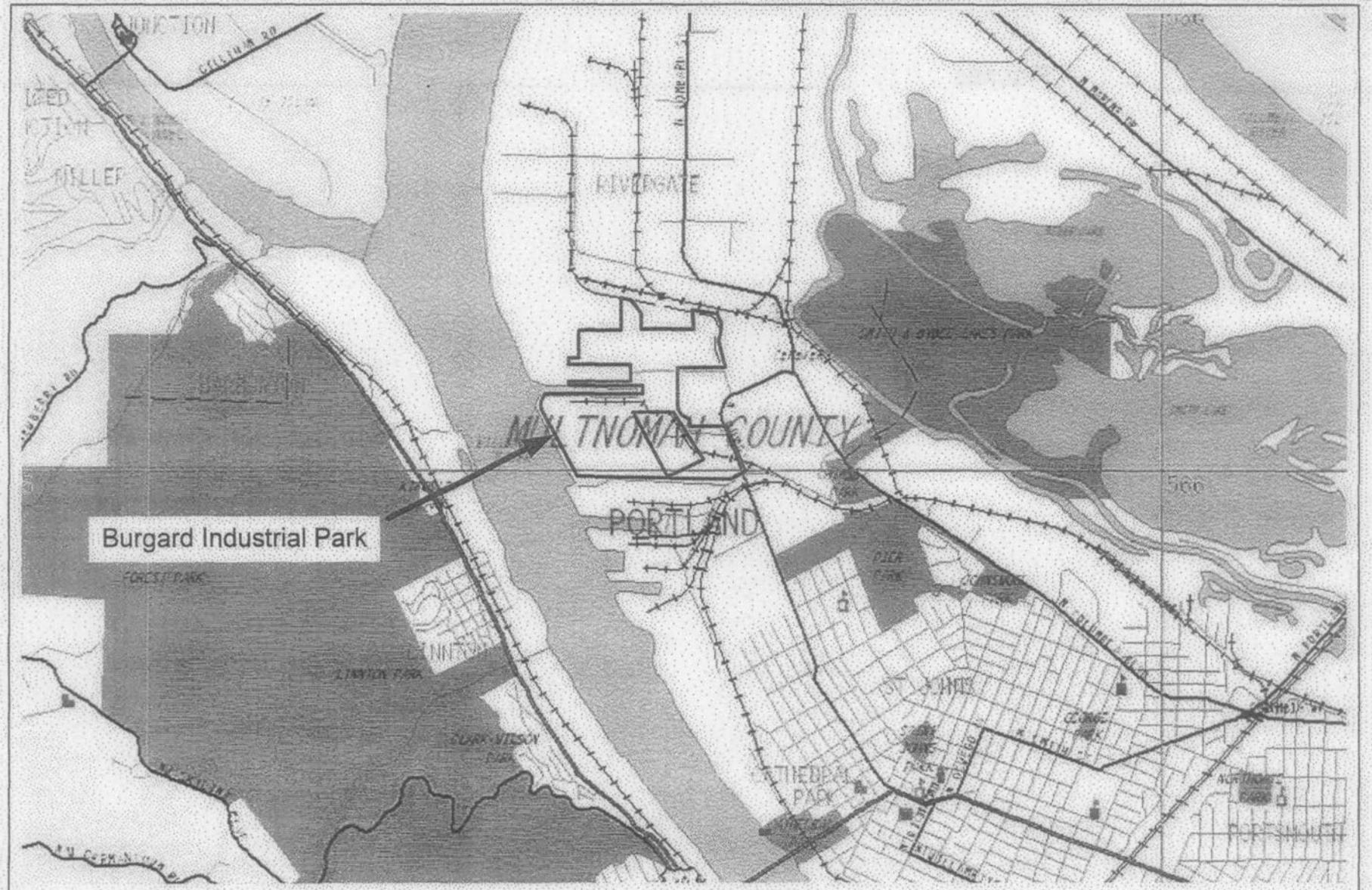
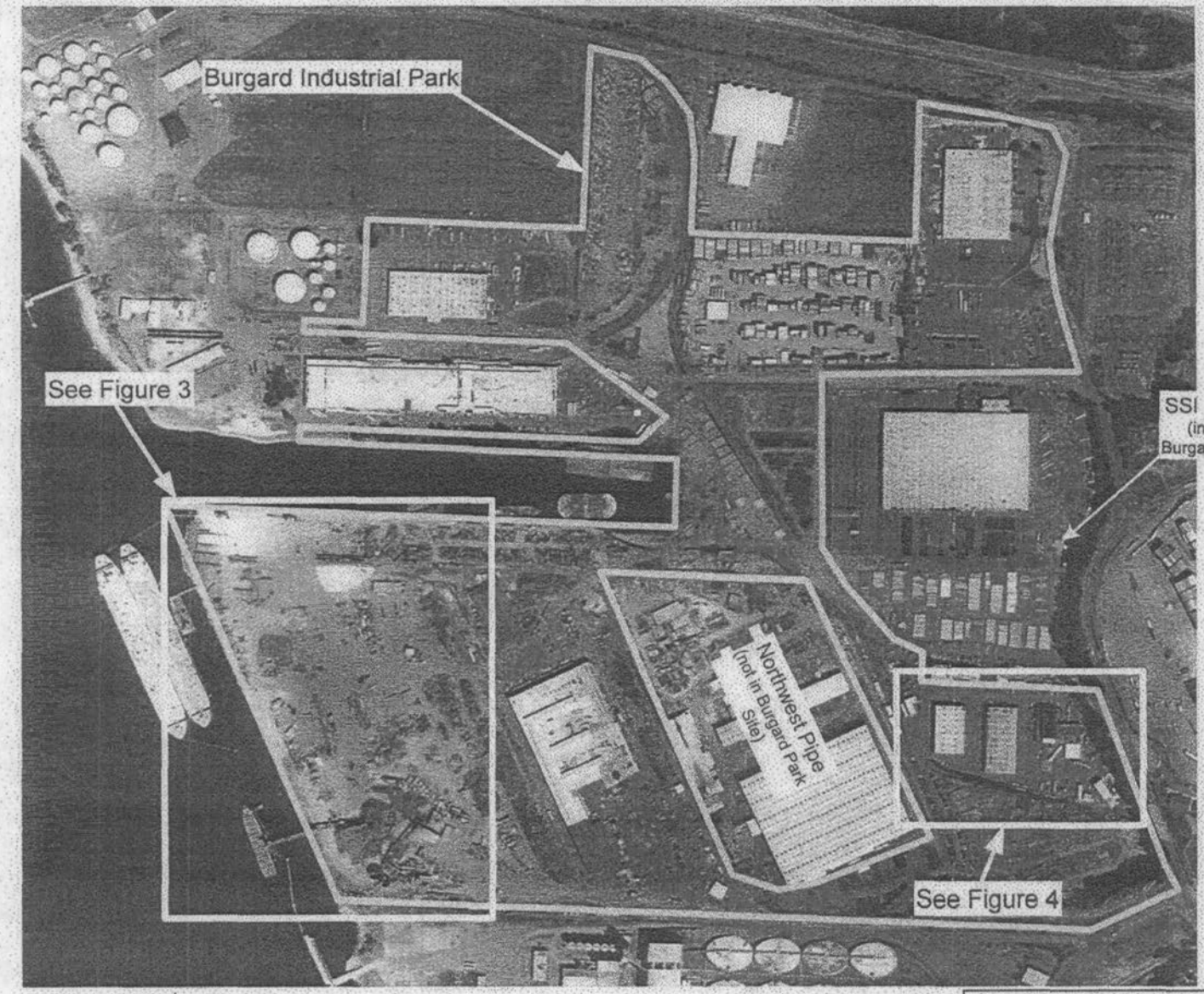


Figure 1
Site Location Map
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204688



N

Approximate Scale

600 Feet

Figure 2
July 2002 Aerial Photograph
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204689

N

Approximate Scale

220 feet

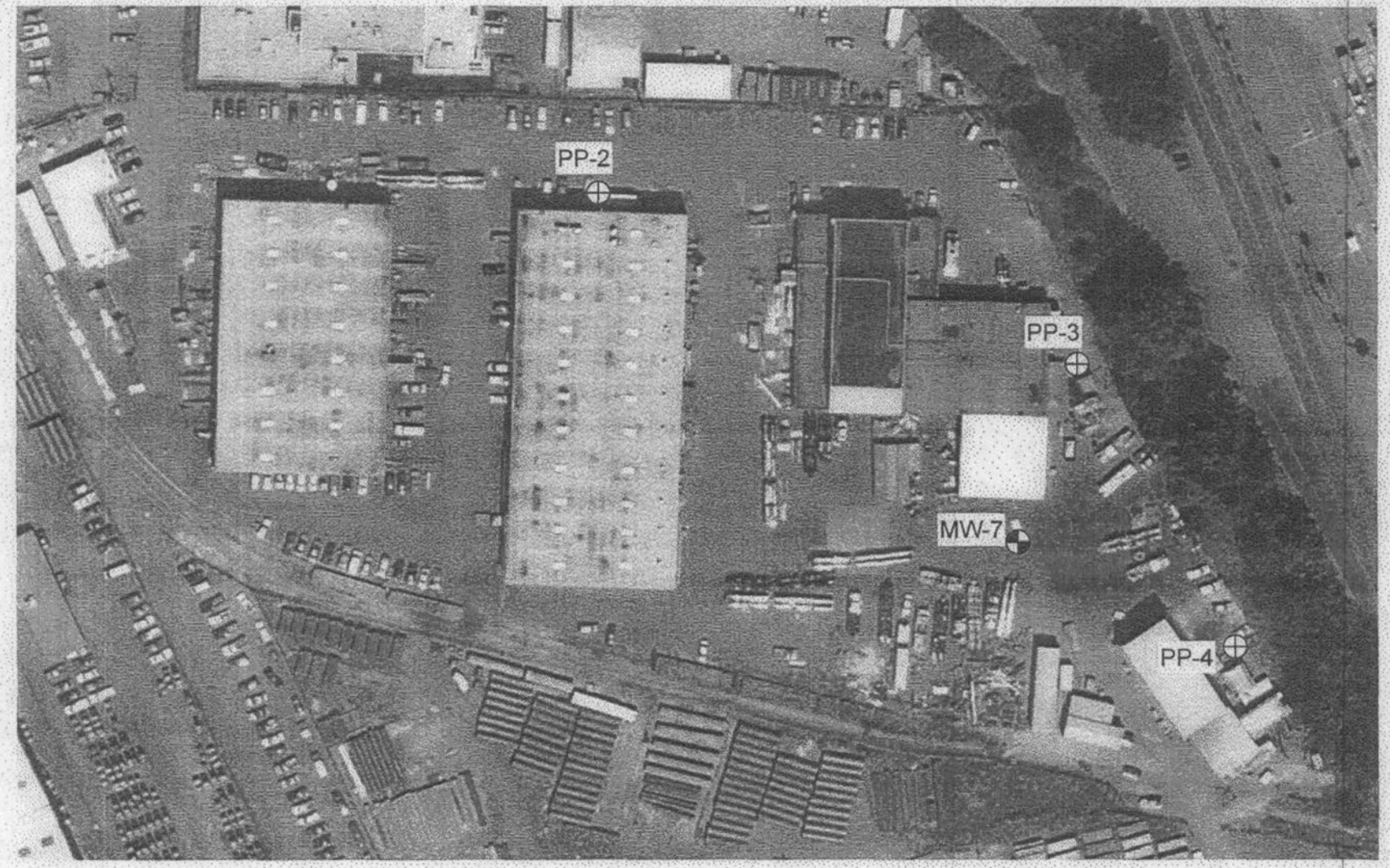
Monitoring Well

Push Probe

Figure 3
Monitoring Well and Push Probe Locations - SE Area
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204690



N

Approximate Scale

100 feet

Monitoring Well

Push Probe

Figure 4
Monitoring Well and Push Probe Locations - SE Area
Burgard Industrial Park

BRIDGEWATER GROUP, INC.

SCHN00204691

APPENDIX A

SCHN002204692

Bridgewater Group	Project: Burgard	
4500 Kruse Way Suite 110	Project Number: SS1-001-21	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 16:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW-MW-04-030415	P3D0592-01	Water	04/15/03 14:15	04/17/03 09:00

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Bridgewater Group	Project: Burgard	
4500 Kruse Way Suite 110	Project Number: SS1-001-21	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 16:46

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW-04-030415 (P3D0592-01) Water						Sampled: 04/15/03	Received: 04/17/03		
Antimony	ND	0.00100	mg/l	1	EPA 6020	04/22/03	04/23/03	3040795	
Arsenic	**0.00864**	0.00100	"	"	"	"	"	"	
Barium	**0.0776**	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.00100	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	04/23/03	"	
Lead	ND	0.00100	"	"	"	"	04/26/03	"	
Mercury	**0.000231**	0.000200	"	"	EPA 7470A	04/22/03	04/22/03	3040780	
Nickel	**0.0106**	0.00200	"	"	EPA 6020	04/22/03	04/23/03	3040795	
Zinc	**0.00622**	0.00500	"	"	"	"	"	"	

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain o, custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Burgard	
4500 Kruse Way Suite 110	Project Number: SS1-001-21	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 16:46

Dissolved Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW-04-030415 (P3D0592-01) Water					Sampled: 04/15/03 Received: 04/17/03				
Arsenic	**0.00629**	0.00100	mg/l	1	EPA 6020	04/22/03	04/29/03	3040798	
Barium	**0.0776**	0.00100	"	"	"	"	04/23/03	"	
Mercury	ND	0.000200	"	"	EPA 7470A	04/22/03	04/22/03	3040779	

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Burgard	
4500 Kruse Way Suite 110	Project Number: SS1-001-21	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 16:46

Total Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040780 - EPA 7470										
Blank (3040780-BLK1)				Prepared & Analyzed: 04/22/03						
Mercury	ND	0.000200	mg/l							
LCS (3040780-BS1)				Prepared & Analyzed: 04/22/03						
Mercury	0.00492	0.000200	mg/l	0.00500		98.4	80-120			
Duplicate (3040780-DUP1)		Source: P3D0542-02		Prepared & Analyzed: 04/22/03						
Mercury	ND	0.000200	mg/l		ND				20	
Matrix Spike (3040780-MS1)		Source: P3D0542-02		Prepared & Analyzed: 04/22/03						
Mercury	0.00493	0.000200	mg/l	0.00500	ND	98.6	75-125			
Batch 3040795 - EPA 200/3005										
Blank (3040795-BLK1)				Prepared: 04/22/03 Analyzed: 04/23/03						
Antimony	ND	0.00100	mg/l							
Arsenic	ND	0.00100	"							
Barium	ND	0.00100	"							
Cadmium	ND	0.00100	"							
Chromium	ND	0.00100	"							
Copper	ND	0.00200	"							
Lead	ND	0.00100	"							
Nickel	ND	0.00200	"							
Zinc	ND	0.00500	"							
LCS (3040795-BS1)				Prepared: 04/22/03 Analyzed: 04/23/03						
Antimony	0.0485	0.00100	mg/l	0.0500		97.0	80-120			
Arsenic	0.0938	0.00100	"	0.100		93.8	80-120			
Barium	0.0982	0.00100	"	0.100		98.2	80-120			
Cadmium	0.0946	0.00100	"	0.100		94.6	80-120			
Chromium	0.0968	0.00100	"	0.100		96.8	80-120			
Copper	0.0958	0.00200	"	0.100		95.8	80-120			
Lead	0.104	0.00100	"	0.100		104	80-120			
Nickel	0.0942	0.00200	"	0.100		94.2	80-120			
Zinc	0.0859	0.00500	"	0.100		85.9	80-120			

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Burgard	
4500 Kruse Way Suite 110	Project Number: SS1-001-21	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 16:46

Total Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040795 - EPA 200/3005										
Duplicate (3040795-DUP1)	**Source: P3D0542-01**			Prepared: 04/22/03 Analyzed: 04/23/03						
Antimony	ND	0.00100	mg/l		0.000270			0.00	20	
Arsenic	0.00280	0.00100	"		0.00251			10.9	20	
Barium	0.0807	0.00100	"		0.0799			0.996	20	
Cadmium	ND	0.00100	"		ND				20	
Chromium	ND	0.00100	"		ND				20	
Copper	0.00907	0.00200	"		0.00909			0.220	20	
Lead	ND	0.00100	"		0.000360			0.00	20	
Nickel	0.00334	0.00200	"		0.00341			2.07	20	
Zinc	ND	0.00500	"		0.00361			0.828	20	
Matrix Spike (3040795-MS1)	**Source: P3D0542-01**			Prepared: 04/22/03 Analyzed: 04/23/03						
Antimony	0.0497	0.00100	mg/l	0.0500	0.000270	98.9	75-125			
Arsenic	0.100	0.00100	"	0.100	0.00251	97.5	75-125			
Barium	0.174	0.00100	"	0.100	0.0799	94.1	75-125			
Cadmium	0.0962	0.00100	"	0.100	ND	96.2	75-125			
Chromium	0.0953	0.00100	"	0.100	ND	95.3	75-125			
Copper	0.116	0.00200	"	0.100	0.00909	107	75-125			
Lead	0.0954	0.00100	"	0.100	0.000360	95.0	75-125			
Nickel	0.108	0.00200	"	0.100	0.00341	105	75-125			
Zinc	0.104	0.00500	"	0.100	0.00361	100	75-125			
Matrix Spike (3040795-MS2)	**Source: P3D0542-02**			Prepared: 04/22/03 Analyzed: 04/23/03						
Antimony	0.0483	0.00100	mg/l	0.0500	0.000310	96.0	75-125			
Arsenic	0.102	0.00100	"	0.100	0.00166	100	75-125			
Barium	0.132	0.00100	"	0.100	0.0341	97.9	75-125			
Cadmium	0.0989	0.00100	"	0.100	ND	98.9	75-125			
Chromium	0.0999	0.00100	"	0.100	ND	99.9	75-125			
Copper	0.110	0.00200	"	0.100	0.00212	108	75-125			
Lead	0.103	0.00100	"	0.100	0.000670	102	75-125			
Nickel	0.106	0.00200	"	0.100	0.00112	105	75-125			
Zinc	0.106	0.00500	"	0.100	0.00422	102	75-125			

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Burgard	
4500 Kruse Way Suite 110	Project Number: SS1-001-21	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 16:46

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040779 - EPA 7470										
Blank (3040779-BLK1)				Prepared & Analyzed: 04/22/03						
Mercury	ND	0.000200	mg/l							
LCS (3040779-BS1)				Prepared & Analyzed: 04/22/03						
Mercury	0.00488	0.000200	mg/l	0.00500		97.6	80-120			
Duplicate (3040779-DUP1)		Source: P3D0131-03		Prepared & Analyzed: 04/22/03						
Mercury	ND	0.000200	mg/l		ND				20	
Matrix Spike (3040779-MS1)		Source: P3D0131-03		Prepared & Analyzed: 04/22/03						
Mercury	0.00504	0.000200	mg/l	0.00500	ND	101	75-125			
Batch 3040798 - EPA 200/3005 Diss										
Blank (3040798-BLK1)				Prepared: 04/22/03 Analyzed: 04/28/03						
Arsenic	ND	0.00100	mg/l							
Barium	ND	0.00100	"							
LCS (3040798-BS1)				Prepared: 04/22/03 Analyzed: 04/29/03						
Arsenic	0.0969	0.00100	mg/l	0.100		96.9	80-120			
Barium	0.0991	0.00100	"	0.100		99.1	80-120			
Duplicate (3040798-DUP1)		Source: P3D0592-01		Prepared: 04/22/03 Analyzed: 04/29/03						
Arsenic	0.00629	0.00100	mg/l		0.00629			0.00	20	
Barium	0.0805	0.00100	"		0.0776			3.67	20	
Matrix Spike (3040798-MS1)		Source: P3D0592-01		Prepared: 04/22/03 Analyzed: 04/29/03						
Arsenic	0.106	0.00100	mg/l	0.100	0.00629	99.7	75-125			
Barium	0.181	0.00100	"	0.100	0.0776	103	75-125			

North Creek Analytical - Portland

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Bridgewater Group	Project: Burgard	
4500 Kruse Way Suite 110	Project Number: SS1-001-21	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 16:46

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. MRLs are adjusted if %Solids are less than 50%.
wet	Sample results reported on a wet weight basis (as received)
RPD	Relative Percent Difference

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW-MW01-032303	P3C0695-01	Water	03/23/03 13:24	03/24/03 12:05
GW-MW02-032303	P3C0695-02	Water	03/23/03 12:00	03/24/03 12:05
GW-MW03-032303	P3C0695-03	Water	03/23/03 14:40	03/24/03 12:05
GW-MW05-032303	P3C0695-04	Water	03/23/03 15:48	03/24/03 12:05
GW-MW07-032303	P3C0695-05	Water	03/23/03 17:15	03/24/03 12:05
Trip Blank	P3C0695-06	Water	03/23/03 17:15	03/24/03 12:05

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW01-032303 (P3C0695-01) Water					Sampled: 03/23/03 Received: 03/24/03				
Antimony	ND	0.00100	mg/l	1	EPA 6020	03/27/03	03/28/03	3030921	
Arsenic	**0.00104**	0.00100	"	"	"	"	"	"	
Barium	**0.0412**	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.00100	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
Mercury	ND	0.000200	"	"	EPA 7470A	03/27/03	03/27/03	3030901	
Nickel	**0.00682**	0.00200	"	"	EPA 6020	03/27/03	03/28/03	3030921	
Zinc	ND	0.00500	"	"	"	"	"	"	
GW-MW02-032303 (P3C0695-02) Water					Sampled: 03/23/03 Received: 03/24/03				
Antimony	ND	0.00100	mg/l	1	EPA 6020	03/27/03	03/28/03	3030921	
Arsenic	**0.00158**	0.00100	"	"	"	"	"	"	
Barium	**0.0378**	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.00100	"	"	"	"	"	"	
Chromium	**0.00143**	0.00100	"	"	"	"	"	"	
Copper	**0.00366**	0.00200	"	"	"	"	"	"	
Lead	**0.00357**	0.00100	"	"	"	"	"	"	
Mercury	ND	0.000200	"	"	EPA 7470A	03/27/03	03/27/03	3030901	
Nickel	ND	0.00200	"	"	EPA 6020	03/27/03	03/28/03	3030921	
Zinc	**0.0295**	0.00500	"	"	"	"	"	"	
GW-MW03-032303 (P3C0695-03) Water					Sampled: 03/23/03 Received: 03/24/03				
Antimony	ND	0.00100	mg/l	1	EPA 6020	03/27/03	03/28/03	3030921	
Arsenic	**0.0411**	0.00100	"	"	"	"	"	"	
Barium	**0.159**	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.00100	"	"	"	"	"	"	
Chromium	**0.0103**	0.00100	"	"	"	"	"	"	
Copper	**0.0246**	0.00200	"	"	"	"	"	"	
Lead	**0.0122**	0.00100	"	"	"	"	"	"	
Mercury	**0.000228**	0.000200	"	"	EPA 7470A	03/27/03	03/27/03	3030901	
Nickel	**0.0136**	0.00200	"	"	EPA 6020	03/27/03	03/28/03	3030921	
Zinc	**0.0466**	0.00500	"	"	"	"	"	"	

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW05-032303 (P3C0695-04) Water					Sampled: 03/23/03 Received: 03/24/03				
Antimony	ND	0.00100	mg/l	1	EPA 6020	03/27/03	03/28/03	3030921	
Arsenic	ND	0.00100	"	"	"	"	04/02/03	"	
Barium	**0.00961**	0.00100	"	"	"	"	03/28/03	"	
Cadmium	ND	0.00100	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00200	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
Mercury	ND	0.000200	"	"	EPA 7470A	03/27/03	03/27/03	3030901	
Nickel	ND	0.00200	"	"	EPA 6020	03/27/03	03/28/03	3030921	
Zinc	ND	0.00500	"	"	"	"	"	"	
GW-MW07-032303 (P3C0695-05) Water					Sampled: 03/23/03 Received: 03/24/03				
Antimony	ND	0.00100	mg/l	1	EPA 6020	03/27/03	03/28/03	3030921	
Arsenic	**0.00318**	0.00100	"	"	"	"	04/02/03	"	
Barium	**0.106**	0.00100	"	"	"	"	03/28/03	"	
Cadmium	ND	0.00100	"	"	"	"	"	"	
Chromium	**0.00533**	0.00100	"	"	"	"	"	"	
Copper	**0.00924**	0.00200	"	"	"	"	"	"	
Lead	**0.00353**	0.00100	"	"	"	"	"	"	
Mercury	ND	0.000200	"	"	EPA 7470A	03/27/03	03/27/03	3030901	
Nickel	**0.00642**	0.00200	"	"	EPA 6020	03/27/03	03/28/03	3030921	
Zinc	**0.0208**	0.00500	"	"	"	"	"	"	

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Dissolved Metals per EPA 6000/7000 Series Methods

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW01-032303 (P3C0695-01) Water					Sampled: 03/23/03 Received: 03/24/03				
Arsenic	ND	0.00100	mg/l	1	EPA 6020	04/22/03	04/29/03	3040798	
Barium	**0.0464**	0.00100	"	"	"	"	04/23/03	"	
GW-MW02-032303 (P3C0695-02) Water					Sampled: 03/23/03 Received: 03/24/03				
Arsenic	ND	0.00100	mg/l	1	EPA 6020	04/22/03	04/29/03	3040798	
Barium	**0.0274**	0.00100	"	"	"	"	04/23/03	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
GW-MW03-032303 (P3C0695-03) Water					Sampled: 03/23/03 Received: 03/24/03				
Arsenic	**0.0328**	0.00100	mg/l	1	EPA 6020	04/22/03	04/29/03	3040798	
Barium	**0.113**	0.00100	"	"	"	"	04/23/03	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	**0.00106**	0.00100	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	
Mercury	ND	0.000200	"	"	EPA 7470A	04/22/03	04/22/03	3040779	I-08
GW-MW05-032303 (P3C0695-04) Water					Sampled: 03/23/03 Received: 03/24/03				
Barium	**0.0101**	0.00100	mg/l	1	EPA 6020	04/22/03	04/23/03	3040798	
GW-MW07-032303 (P3C0695-05) Water					Sampled: 03/23/03 Received: 03/24/03				
Arsenic	**0.00164**	0.00100	mg/l	1	EPA 6020	04/22/03	04/29/03	3040798	
Barium	**0.0653**	0.00100	"	"	"	"	04/23/03	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	**0.00161**	0.00100	"	"	"	"	"	"	
Lead	ND	0.00100	"	"	"	"	"	"	

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW01-032303 (P3C0695-01) Water					Sampled: 03/23/03 Received: 03/24/03				
Acetone	ND	25.0	ug/l	1	EPA 8260B	03/28/03	03/28/03	3030938	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**14.3**	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW01-032303 (P3C0695-01) Water					Sampled: 03/23/03 Received: 03/24/03				
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	03/28/03	03/28/03	3030938	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	**23.2**	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	**20.1**	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	**1.18**	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
Surr: 4-BFB	*104 %*	*84.5-124*							
Surr: 1,2-DCA-d4	*93.0 %*	*77.9-123*							
Surr: Dibromofluoromethane	*99.0 %*	*83.5-119*							
Surr: Toluene-d8	*104 %*	*84.1-116*							

North Creek Analytical - Portland

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW02-032303 (P3C0695-02) Water					Sampled: 03/23/03 Received: 03/24/03				
Acetone	ND	25.0	ug/l	1	EPA 8260B	03/28/03	03/28/03	3030938	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	**1.97**	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW02-032303 (P3C0695-02) Water					Sampled: 03/23/03	Received: 03/24/03			
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	03/28/03	03/28/03	3030938	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	**7.76**	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	**8.90**	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
Surr: 4-BFB	*110 %*	*84.5-124*							
Surr: 1,2-DCA-d4	*97.5 %*	*77.9-123*							
Surr: Dibromofluoromethane	*102 %*	*83.5-119*							
Surr: Toluene-d8	*108 %*	*84.1-116*							

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW07-032303 (P3C0695-05) Water					Sampled: 03/23/03	Received: 03/24/03			
Acetone	ND	25.0	ug/l	1	EPA 8260B	03/28/03	03/28/03	3030938	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW07-032303 (P3C0695-05) Water						Sampled: 03/23/03	Received: 03/24/03		
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	03/28/03	03/28/03	3030938	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	**1.27**	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
Surr: 4-BFB	*104 %*	*84.5-124*							
Surr: 1,2-DCA-d4	*92.0 %*	*77.9-123*							
Surr: Dibromofluoromethane	*97.5 %*	*83.5-119*							
Surr: Toluene-d8	*103 %*	*84.1-116*							

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
Trip Blank (P3C0695-06) Water					Sampled: 03/23/03 Received: 03/24/03				
Acetone	ND	25.0	ug/l	1	EPA 8260B	04/01/03	04/01/03	3040005	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	5.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	10.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
Ethylbenzene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
Trip Blank (P3C0695-06) Water					Sampled: 03/23/03 Received: 03/24/03				
Hexachlorobutadiene	ND	2.00	ug/l	1	EPA 8260B	04/01/03	04/01/03	3040005	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	2.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	2.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	5.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
Surr: 4-BFB	*95.5 %*	*84.5-124*							
Surr: 1,2-DCA-d4	*109 %*	*77.9-123*							
Surr: Dibromofluoromethane	*104 %*	*83.5-119*							
Surr: Toluene-d8	*104 %*	*84.1-116*							

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Polynuclear Aromatic Compounds per EPA 8270M-SIM

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Method	Prepared	Analyzed	Batch	Notes
GW-MW03-032303 (P3C0695-03) Water						Sampled: 03/23/03	Received: 03/24/03		
Acenaphthene	ND	0.100	ug/l	1	EPA 8270m	03/27/03	04/03/03	3030892	
Acenaphthylene	ND	0.100	"	"	"	"	"	"	
Anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.100	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.100	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.100	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	0.100	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.100	"	"	"	"	"	"	
Chrysene	ND	0.100	"	"	"	"	"	"	
Dibenzo (a,h) anthracene	ND	0.200	"	"	"	"	"	"	
Fluoranthene	ND	0.100	"	"	"	"	"	"	
Fluorene	ND	0.100	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.100	"	"	"	"	"	"	
Naphthalene	ND	0.100	"	"	"	"	"	"	
Phenanthrene	ND	0.100	"	"	"	"	"	"	
Pyrene	ND	0.100	"	"	"	"	"	"	
Surr: Fluorene-d10	*92.8 %*	*25-125*							
Surr: Pyrene-d10	*92.4 %*	*23-150*							
Surr: Benzo (a) pyrene-d12	*89.4 %*	*10-125*							

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Total Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3030901 - EPA 7470										
Blank (3030901-BLK1)				Prepared & Analyzed: 03/27/03						
Mercury	ND	0.000200	mg/l							
LCS (3030901-BS1)				Prepared & Analyzed: 03/27/03						
Mercury	0.00486	0.000200	mg/l	0.00500		97.2	80-120			
Duplicate (3030901-DUP1)		Source: P3C0669-01		Prepared & Analyzed: 03/27/03						
Mercury	ND	0.000200	mg/l		ND				20	
Matrix Spike (3030901-MS1)		Source: P3C0669-01		Prepared & Analyzed: 03/27/03						
Mercury	0.00474	0.000200	mg/l	0.00500	ND	94.8	75-125			
Batch 3030921 - EPA 200/3005										
Blank (3030921-BLK1)				Prepared: 03/27/03 Analyzed: 03/28/03						
Antimony	ND	0.00100	mg/l							
Arsenic	ND	0.00100	"							
Barium	ND	0.00100	"							
Cadmium	ND	0.00100	"							
Chromium	ND	0.00100	"							
Copper	ND	0.00200	"							
Lead	ND	0.00100	"							
Nickel	ND	0.00200	"							
Zinc	ND	0.00500	"							
LCS (3030921-BS1)				Prepared: 03/27/03 Analyzed: 03/28/03						
Antimony	0.0512	0.00100	mg/l	0.0500		102	80-120			
Arsenic	0.0980	0.00100	"	0.100		98.0	80-120			
Barium	0.0978	0.00100	"	0.100		97.8	80-120			
Cadmium	0.0972	0.00100	"	0.100		97.2	80-120			
Chromium	0.0962	0.00100	"	0.100		96.2	80-120			
Copper	0.0946	0.00200	"	0.100		94.6	80-120			
Lead	0.104	0.00100	"	0.100		104	80-120			
Nickel	0.0932	0.00200	"	0.100		93.2	80-120			
Zinc	0.0913	0.00500	"	0.100		91.3	80-120			

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Total Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3030921 - EPA 200/3005										
Duplicate (3030921-DUP1)		**Source: P3C0695-01**		Prepared: 03/27/03 Analyzed: 03/28/03						
Antimony	ND	0.00100	mg/l		ND				20	
Arsenic	ND	0.00100	"		0.00104				20	
Barium	0.0404	0.00100	"		0.0412			1.96	20	
Cadmium	ND	0.00100	"		ND				20	
Chromium	ND	0.00100	"		ND				20	
Copper	ND	0.00200	"		0.000830			17.0	20	
Lead	ND	0.00100	"		ND				20	
Nickel	0.00680	0.00200	"		0.00682			0.294	20	
Zinc	ND	0.00500	"		0.00177				20	
Matrix Spike (3030921-MS1)		**Source: P3C0695-01**		Prepared: 03/27/03 Analyzed: 03/28/03						
Antimony	0.0524	0.00100	mg/l	0.0500	ND	105	75-125			
Arsenic	0.109	0.00100	"	0.100	0.00104	108	75-125			
Barium	0.138	0.00100	"	0.100	0.0412	96.8	75-125			
Cadmium	0.100	0.00100	"	0.100	ND	100	75-125			
Chromium	0.102	0.00100	"	0.100	ND	102	75-125			
Copper	0.0995	0.00200	"	0.100	0.000830	98.7	75-125			
Lead	0.101	0.00100	"	0.100	ND	101	75-125			
Nickel	0.103	0.00200	"	0.100	0.00682	96.2	75-125			
Zinc	0.100	0.00500	"	0.100	0.00177	98.2	75-125			
Matrix Spike (3030921-MS2)		**Source: P3C0695-02**		Prepared: 03/27/03 Analyzed: 03/28/03						
Antimony	0.0511	0.00100	mg/l	0.0500	0.000930	100	75-125			
Arsenic	0.108	0.00100	"	0.100	0.00158	106	75-125			
Barium	0.134	0.00100	"	0.100	0.0378	96.2	75-125			
Cadmium	0.100	0.00100	"	0.100	ND	100	75-125			
Chromium	0.102	0.00100	"	0.100	0.00143	101	75-125			
Copper	0.101	0.00200	"	0.100	0.00366	97.3	75-125			
Lead	0.107	0.00100	"	0.100	0.00357	103	75-125			
Nickel	0.0992	0.00200	"	0.100	0.00189	97.3	75-125			
Zinc	0.131	0.00500	"	0.100	0.0295	102	75-125			

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040779 - EPA 7470										
Blank (3040779-BLK1)				Prepared & Analyzed: 04/22/03						
Mercury	ND	0.000200	mg/l							
LCS (3040779-BS1)				Prepared & Analyzed: 04/22/03						
Mercury	0.00488	0.000200	mg/l	0.00500		97.6	80-120			
Duplicate (3040779-DUP1)		Source: P3D0131-03		Prepared & Analyzed: 04/22/03						
Mercury	ND	0.000200	mg/l		ND				20	
Matrix Spike (3040779-MS1)		Source: P3D0131-03		Prepared & Analyzed: 04/22/03						
Mercury	0.00504	0.000200	mg/l	0.00500	ND	101	75-125			
Batch 3040798 - EPA 200/3005 Diss										
Blank (3040798-BLK1)				Prepared: 04/22/03 Analyzed: 04/28/03						
Arsenic	ND	0.00100	mg/l							
Barium	ND	0.00100	"							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
Lead	ND	0.00100	"							
LCS (3040798-BS1)				Prepared: 04/22/03 Analyzed: 04/29/03						
Arsenic	0.0969	0.00100	mg/l	0.100		96.9	80-120			
Barium	0.0991	0.00100	"	0.100		99.1	80-120			
Chromium	0.0972	0.00100	"	0.100		97.2	80-120			
Copper	0.105	0.00100	"	0.100		105	80-120			
Lead	0.0926	0.00100	"	0.100		92.6	80-120			

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Dissolved Metals per EPA 6000/7000 Series Methods - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040798 - EPA 200/3005 Diss										
Duplicate (3040798-DUP1)	**Source: P3D0592-01**			Prepared: 04/22/03 Analyzed: 04/29/03						
Arsenic	0.00629	0.00100	mg/l		0.00629			0.00	20	
Barium	0.0805	0.00100	"		0.0776			3.67	20	
Chromium	ND	0.00100	"		ND				20	
Copper	0.00138	0.00100	"		0.00130			5.97	20	
Lead	ND	0.00100	"		ND				20	
Matrix Spike (3040798-MS1)	**Source: P3D0592-01**			Prepared: 04/22/03 Analyzed: 04/29/03						
Arsenic	0.106	0.00100	mg/l	0.100	0.00629	99.7	75-125			
Barium	0.181	0.00100	"	0.100	0.0776	103	75-125			
Chromium	0.104	0.00100	"	0.100	ND	104	75-125			
Copper	0.102	0.00100	"	0.100	0.00130	101	75-125			
Lead	0.0877	0.00100	"	0.100	ND	87.7	75-125			

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Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3030938 - EPA 5030B										
Blank (3030938-BLK1)				Prepared & Analyzed: 03/28/03						
Acetone	ND	25.0	ug/l							
Benzene	ND	1.00	"							
Bromobenzene	ND	1.00	"							
Bromochloromethane	ND	1.00	"							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
2-Butanone	ND	10.0	"							
n-Butylbenzene	ND	5.00	"							
sec-Butylbenzene	ND	1.00	"							
tert-Butylbenzene	ND	1.00	"							
Carbon disulfide	ND	10.0	"							
Carbon tetrachloride	ND	1.00	"							
Chlorobenzene	ND	1.00	"							
Chloroethane	ND	1.00	"							
Chloroform	ND	1.00	"							
Chloromethane	ND	5.00	"							
2-Chlorotoluene	ND	1.00	"							
4-Chlorotoluene	ND	1.00	"							
1,2-Dibromo-3-chloropropane	ND	5.00	"							
Dibromochloromethane	ND	1.00	"							
1,2-Dibromoethane	ND	1.00	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	1.00	"							
1,3-Dichlorobenzene	ND	1.00	"							
1,4-Dichlorobenzene	ND	1.00	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	1.00	"							
1,2-Dichloroethane	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
cis-1,2-Dichloroethene	ND	1.00	"							
trans-1,2-Dichloroethene	ND	1.00	"							
1,2-Dichloropropane	ND	1.00	"							
1,3-Dichloropropane	ND	1.00	"							
2,2-Dichloropropane	ND	1.00	"							
1,1-Dichloropropene	ND	1.00	"							

North Creek Analytical - Portland

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Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3030938 - EPA 5030B										
Blank (3030938-BLK1)				Prepared & Analyzed: 03/28/03						
cis-1,3-Dichloropropene	ND	1.00	ug/l							
trans-1,3-Dichloropropene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	2.00	"							
2-Hexanone	ND	10.0	"							
Isopropylbenzene	ND	2.00	"							
p-Isopropyltoluene	ND	2.00	"							
4-Methyl-2-pentanone	ND	5.00	"							
Methyl tert-butyl ether	ND	1.00	"							
Methylene chloride	ND	5.00	"							
Naphthalene	ND	2.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	1.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	1.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl chloride	ND	1.00	"							
o-Xylene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
Surr: 4-BFB	*18.6*		"	*20.0*		*93.0*	*84.5-124*			
Surr: 1,2-DCA-d4	*22.1*		"	*20.0*		*110*	*77.9-123*			
Surr: Dibromofluoromethane	*21.1*		"	*20.0*		*106*	*83.5-119*			
Surr: Toluene-d8	*20.4*		"	*20.0*		*102*	*84.1-116*			

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3030938 - EPA 5030B										
LCS (3030938-BS1)				Prepared & Analyzed: 03/28/03						
Benzene	22.0	1.00	ug/l	20.0		110	80-120			
Chlorobenzene	22.7	1.00	"	20.0		114	80-120			
1,1-Dichloroethene	21.8	1.00	"	20.0		109	80-120			
Toluene	22.0	1.00	"	20.0		110	80-120			
Trichloroethene	23.1	1.00	"	20.0		116	80-124			
Surr: 4-BFB	*19.5*		"	*20.0*		*97.5*	*84.5-124*			
Surr: 1,2-DCA-d4	*21.1*		"	*20.0*		*106*	*77.9-123*			
Surr: Dibromofluoromethane	*21.0*		"	*20.0*		*105*	*83.5-119*			
Surr: Toluene-d8	*20.4*		"	*20.0*		*102*	*84.1-116*			
Matrix Spike (3030938-MS1)	**Source: P3C0623-12**			Prepared & Analyzed: 03/28/03						
Benzene	21.3	1.00	ug/l	20.0	ND	106	80-124			
Chlorobenzene	21.3	1.00	"	20.0	ND	106	72.9-134			
1,1-Dichloroethene	21.8	1.00	"	20.0	ND	109	79.3-127			
Toluene	21.2	1.00	"	20.0	ND	106	79.7-131			
Trichloroethene	20.7	1.00	"	20.0	ND	104	68.4-130			
Surr: 4-BFB	*20.7*		"	*20.0*		*104*	*84.5-124*			
Surr: 1,2-DCA-d4	*22.1*		"	*20.0*		*110*	*77.9-123*			
Surr: Dibromofluoromethane	*21.8*		"	*20.0*		*109*	*83.5-119*			
Surr: Toluene-d8	*21.5*		"	*20.0*		*108*	*84.1-116*			
Matrix Spike Dup (3030938-MSD1)	**Source: P3C0623-12**			Prepared & Analyzed: 03/28/03						
Benzene	21.4	1.00	ug/l	20.0	ND	107	80-124	0.468	25	
Chlorobenzene	21.2	1.00	"	20.0	ND	106	72.9-134	0.471	25	
1,1-Dichloroethene	19.1	1.00	"	20.0	ND	95.5	79.3-127	13.2	25	
Toluene	20.9	1.00	"	20.0	ND	104	79.7-131	1.43	25	
Trichloroethene	20.9	1.00	"	20.0	ND	104	68.4-130	0.962	25	
Surr: 4-BFB	*19.8*		"	*20.0*		*99.0*	*84.5-124*			
Surr: 1,2-DCA-d4	*20.3*		"	*20.0*		*102*	*77.9-123*			
Surr: Dibromofluoromethane	*20.2*		"	*20.0*		*101*	*83.5-119*			
Surr: Toluene-d8	*20.2*		"	*20.0*		*101*	*84.1-116*			

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040005 - EPA 5030B										
Blank (3040005-BLK1)				Prepared & Analyzed: 04/01/03						
Acetone	ND	25.0	ug/l							
Benzene	ND	1.00	"							
Bromobenzene	ND	1.00	"							
Bromochloromethane	ND	1.00	"							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	5.00	"							
2-Butanone	ND	10.0	"							
n-Butylbenzene	ND	5.00	"							
sec-Butylbenzene	ND	1.00	"							
tert-Butylbenzene	ND	1.00	"							
Carbon disulfide	ND	10.0	"							
Carbon tetrachloride	ND	1.00	"							
Chlorobenzene	ND	1.00	"							
Chloroethane	ND	1.00	"							
Chloroform	ND	1.00	"							
Chloromethane	ND	5.00	"							
2-Chlorotoluene	ND	1.00	"							
4-Chlorotoluene	ND	1.00	"							
1,2-Dibromo-3-chloropropane	ND	5.00	"							
Dibromochloromethane	ND	1.00	"							
1,2-Dibromoethane	ND	1.00	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	1.00	"							
1,3-Dichlorobenzene	ND	1.00	"							
1,4-Dichlorobenzene	ND	1.00	"							
Dichlorodifluoromethane	ND	5.00	"							
1,1-Dichloroethane	ND	1.00	"							
1,2-Dichloroethane	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
cis-1,2-Dichloroethene	ND	1.00	"							
trans-1,2-Dichloroethene	ND	1.00	"							
1,2-Dichloropropane	ND	1.00	"							
1,3-Dichloropropane	ND	1.00	"							
2,2-Dichloropropane	ND	1.00	"							
1,1-Dichloropropene	ND	1.00	"							

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040005 - EPA 5030B										
Blank (3040005-BLK1)				Prepared & Analyzed: 04/01/03						
cis-1,3-Dichloropropene	ND	1.00	ug/l							
trans-1,3-Dichloropropene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	2.00	"							
2-Hexanone	ND	10.0	"							
Isopropylbenzene	ND	2.00	"							
p-Isopropyltoluene	ND	2.00	"							
4-Methyl-2-pentanone	ND	5.00	"							
Methyl tert-butyl ether	ND	1.00	"							
Methylene chloride	ND	5.00	"							
Naphthalene	ND	2.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	1.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	1.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl chloride	ND	1.00	"							
o-Xylene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
Surr: 4-BFB	*19.3*		"	*20.0*		*96.5*	*84.5-124*			
Surr: 1,2-DCA-d4	*21.5*		"	*20.0*		*108*	*77.9-123*			
Surr: Dibromofluoromethane	*21.0*		"	*20.0*		*105*	*83.5-119*			
Surr: Toluene-d8	*21.0*		"	*20.0*		*105*	*84.1-116*			

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Volatile Organic Compounds per EPA Method 8260B - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040005 - EPA 5030B										
LCS (3040005-BS1)				Prepared & Analyzed: 04/01/03						
Benzene	21.7	1.00	ug/l	20.0		108	80-120			
Chlorobenzene	21.6	1.00	"	20.0		108	80-120			
1,1-Dichloroethene	21.3	1.00	"	20.0		106	80-120			
Toluene	21.6	1.00	"	20.0		108	80-120			
Trichloroethene	22.3	1.00	"	20.0		112	80-124			
Surr: 4-BFB	*24.9*		"	*20.0*		*124*	*84.5-124*			
Surr: 1,2-DCA-d4	*20.6*		"	*20.0*		*103*	*77.9-123*			
Surr: Dibromofluoromethane	*20.5*		"	*20.0*		*102*	*83.5-119*			
Surr: Toluene-d8	*19.7*		"	*20.0*		*98.5*	*84.1-116*			
Matrix Spike (3040005-MS1)	**Source: P3C0909-01**			Prepared & Analyzed: 04/01/03						
Benzene	22.4	1.00	ug/l	20.0	ND	112	80-124			
Chlorobenzene	20.2	1.00	"	20.0	ND	101	72.9-134			
1,1-Dichloroethene	23.0	1.00	"	20.0	ND	115	79.3-127			
Toluene	22.2	1.00	"	20.0	ND	111	79.7-131			
Trichloroethene	21.8	1.00	"	20.0	ND	109	68.4-130			
Surr: 4-BFB	*19.0*		"	*20.0*		*95.0*	*84.5-124*			
Surr: 1,2-DCA-d4	*20.4*		"	*20.0*		*102*	*77.9-123*			
Surr: Dibromofluoromethane	*20.2*		"	*20.0*		*101*	*83.5-119*			
Surr: Toluene-d8	*20.0*		"	*20.0*		*100*	*84.1-116*			
Matrix Spike Dup (3040005-MSD1)	**Source: P3C0909-01**			Prepared & Analyzed: 04/01/03						
Benzene	22.2	1.00	ug/l	20.0	ND	111	80-124	0.897	25	
Chlorobenzene	22.2	1.00	"	20.0	ND	111	72.9-134	9.43	25	
1,1-Dichloroethene	22.5	1.00	"	20.0	ND	112	79.3-127	2.20	25	
Toluene	22.0	1.00	"	20.0	ND	110	79.7-131	0.905	25	
Trichloroethene	21.6	1.00	"	20.0	ND	108	68.4-130	0.922	25	
Surr: 4-BFB	*19.5*		"	*20.0*		*97.5*	*84.5-124*			
Surr: 1,2-DCA-d4	*20.1*		"	*20.0*		*100*	*77.9-123*			
Surr: Dibromofluoromethane	*20.6*		"	*20.0*		*103*	*83.5-119*			
Surr: Toluene-d8	*20.4*		"	*20.0*		*102*	*84.1-116*			

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3030892 - EPA 3520/600 Series										
Blank (3030892-BLK1)				Prepared: 03/27/03 Analyzed: 04/01/03						
Acenaphthene	ND	0.100	ug/l							
Acenaphthylene	ND	0.100	"							
Anthracene	ND	0.100	"							
Benzo (a) anthracene	ND	0.100	"							
Benzo (a) pyrene	ND	0.100	"							
Benzo (b) fluoranthene	ND	0.100	"							
Benzo (ghi) perylene	ND	0.100	"							
Benzo (k) fluoranthene	ND	0.100	"							
Chrysene	ND	0.100	"							
Dibenzo (a,h) anthracene	ND	0.200	"							
Fluoranthene	ND	0.100	"							
Fluorene	ND	0.100	"							
Indeno (1,2,3-cd) pyrene	ND	0.100	"							
Naphthalene	ND	0.100	"							
Phenanthrene	ND	0.100	"							
Pyrene	ND	0.100	"							
Surr: Fluorene-d10	*2.33*		"	*2.50*		*93.2*	*25-125*			
Surr: Pyrene-d10	*2.39*		"	*2.50*		*95.6*	*23-150*			
Surr: Benzo (a) pyrene-d12	*2.29*		"	*2.50*		*91.6*	*10-125*			
LCS (3030892-BS1)				Prepared: 03/27/03 Analyzed: 04/01/03						
Acenaphthene	2.18	0.100	ug/l	2.50		87.2	26-135			
Benzo (a) pyrene	2.24	0.100	"	2.50		89.6	38-137			
Pyrene	2.03	0.100	"	2.50		81.2	33-133			
Surr: Fluorene-d10	*2.29*		"	*2.50*		*91.6*	*25-125*			
Surr: Pyrene-d10	*2.20*		"	*2.50*		*88.0*	*23-150*			
Surr: Benzo (a) pyrene-d12	*2.15*		"	*2.50*		*86.0*	*10-125*			

North Creek Analytical - Portland

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Philip Nerenberg

Philip Nerenberg, Laboratory Manager

Bridgewater Group	Project: Schnitzer	
4500 Kruse Way Suite 110	Project Number: none	**Reported:**
Lake Oswego, OR 97035	Project Manager: Ross Rieke	04/30/03 11:23

Polynuclear Aromatic Compounds per EPA 8270M-SIM - Quality Control

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3030892 - EPA 3520/600 Series										
LCS Dup (3030892-BSD1)				Prepared: 03/27/03 Analyzed: 04/01/03						
Acenaphthene	2.24	0.100	ug/l	2.50		89.6	26-135	2.71	60	
Benzo (a) pyrene	2.40	0.100	"	2.50		96.0	38-137	6.90	60	
Pyrene	2.13	0.100	"	2.50		85.2	33-133	4.81	60	
Surr: Fluorene-d10	*2.29*		"	*2.50*		*91.6*	*25-125*			
Surr: Pyrene-d10	*2.28*		"	*2.50*		*91.2*	*23-150*			
Surr: Benzo (a) pyrene-d12	*2.30*		"	*2.50*		*92.0*	*10-125*			

North Creek Analytical - Portland

Philip Nerenberg

Philip Nerenberg, Laboratory Manager

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Notes and Definitions

I-08	Analysis requested after recommended hold time had expired.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. MRLs are adjusted if %Solids are less than 50%.
wet	Sample results reported on a wet weight basis (as received)
RPD	Relative Percent Difference

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907.563.9200 fax 907.563.9210

Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW-MW03-042803	B3D0618-01	Water	04/28/03 11:50	04/29/03 08:55

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GW-MW03-042803 (B3D0618-01) Water Sampled: 04/28/03 11:50 Received: 04/29/03 08:55									
1,2,4-Trichlorobenzene	ND	10.0	ug/l	1	3E01001	05/01/03	05/08/03	EPA 8270C	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	20.0	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	10.0	"	"	"	"	"	"	
2,6-Dinitrotoluene	ND	10.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10.0	"	"	"	"	"	"	
2-Chlorophenol	ND	10.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10.0	"	"	"	"	"	"	
2-Methylphenol	ND	10.0	"	"	"	"	"	"	
2-Nitroaniline	ND	10.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10.0	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10.0	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10.0	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10.0	"	"	"	"	"	"	
4-Chloroaniline	ND	10.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10.0	"	"	"	"	"	"	
Acenaphthene	ND	10.0	"	"	"	"	"	"	
Acenaphthylene	ND	10.0	"	"	"	"	"	"	
Aniline	ND	10.0	"	"	"	"	"	"	
Anthracene	ND	10.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10.0	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	10.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzoic Acid	ND	20.0	"	"	"	"	"	"	
Benzyl alcohol	ND	10.0	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
GW-MW03-042803 (B3D0618-01) Water Sampled: 04/28/03 11:50 Received: 04/29/03 08:55									
Bis(2-chloroethoxy)methane	ND	10.0	ug/l	1	3E01001	05/01/03	05/08/03	EPA 8270C	
Bis(2-chloroethyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	50.0	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10.0	"	"	"	"	"	"	
Carbazole	ND	10.0	"	"	"	"	"	"	
Chrysene	ND	10.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10.0	"	"	"	"	"	"	
Di-n-octyl phthalate	ND	10.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10.0	"	"	"	"	"	"	
Dibenzofuran	ND	10.0	"	"	"	"	"	"	
Diethyl phthalate	ND	10.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	10.0	"	"	"	"	"	"	
Fluorene	ND	10.0	"	"	"	"	"	"	
Hexachlorobenzene	ND	10.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10.0	"	"	"	"	"	"	
Hexachloroethane	ND	10.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10.0	"	"	"	"	"	"	
Isophorone	ND	10.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	10.0	"	"	"	"	"	"	
Pentachlorophenol	ND	10.0	"	"	"	"	"	"	
Phenanthrene	ND	10.0	"	"	"	"	"	"	
Phenol	ND	10.0	"	"	"	"	"	"	
Pyrene	ND	10.0	"	"	"	"	"	"	
Surrogate: 2-FP	*70.8 %*	*27-124*			"	"	"	"	
Surrogate: Phenol-d6	*78.6 %*	*12-124*			"	"	"	"	
Surrogate: 2,4,6-TBP	*80.1 %*	*33-143*			"	"	"	"	
Surrogate: Nitrobenzene-d5	*83.7 %*	*35-119*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*69.1 %*	*10-131*			"	"	"	"	
Surrogate: 2-FBP	*95.6 %*	*44-124*			"	"	"	"	

North Creek Analytical - Bothell

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Amar Gill, Project Manager

SCHN00204728

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3E01001: Prepared 05/01/03 Using EPA 3520C										
Blank (3E01001-BLK1)										
1,2,4-Trichlorobenzene	ND	10.0	ug/l							
1,2-Dichlorobenzene	ND	10.0	"							
1,3-Dichlorobenzene	ND	10.0	"							
1,4-Dichlorobenzene	ND	10.0	"							
2,4,5-Trichlorophenol	ND	10.0	"							
2,4,6-Trichlorophenol	ND	10.0	"							
2,4-Dichlorophenol	ND	10.0	"							
2,4-Dimethylphenol	ND	10.0	"							
2,4-Dinitrophenol	ND	20.0	"							
2,4-Dinitrotoluene	ND	10.0	"							
2,6-Dinitrotoluene	ND	10.0	"							
2-Chloronaphthalene	ND	10.0	"							
2-Chlorophenol	ND	10.0	"							
2-Methylnaphthalene	ND	10.0	"							
2-Methylphenol	ND	10.0	"							
2-Nitroaniline	ND	10.0	"							
2-Nitrophenol	ND	10.0	"							
3 & 4-Methylphenol	ND	10.0	"							
3,3'-Dichlorobenzidine	ND	10.0	"							
3-Nitroaniline	ND	10.0	"							
4,6-Dinitro-2-methylphenol	ND	10.0	"							
4-Bromophenyl phenyl ether	ND	10.0	"							
4-Chloro-3-methylphenol	ND	10.0	"							
4-Chloroaniline	ND	10.0	"							
4-Chlorophenyl phenyl ether	ND	10.0	"							
4-Nitroaniline	ND	10.0	"							
4-Nitrophenol	ND	10.0	"							
Acenaphthene	ND	10.0	"							
Acenaphthylene	ND	10.0	"							
Aniline	ND	10.0	"							
Anthracene	ND	10.0	"							
Benzo (a) anthracene	ND	10.0	"							
Benzo (a) pyrene	ND	10.0	"							
Benzo (b) fluoranthene	ND	10.0	"							

North Creek Analytical - Bothell

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3E01001: Prepared 05/01/03 Using EPA 3520C										
Blank (3E01001-BLK1)										
Benzo (ghi) perylene	ND	10.0	ug/l							
Benzo (k) fluoranthene	ND	10.0	"							
Benzoic Acid	ND	20.0	"							
Benzyl alcohol	ND	10.0	"							
Bis(2-chloroethoxy)methane	ND	10.0	"							
Bis(2-chloroethyl)ether	ND	10.0	"							
Bis(2-chloroisopropyl)ether	ND	10.0	"							
Bis(2-ethylhexyl)phthalate	ND	50.0	"							
Butyl benzyl phthalate	ND	10.0	"							
Carbazole	ND	10.0	"							
Chrysene	ND	10.0	"							
Di-n-butyl phthalate	ND	10.0	"							
Di-n-octyl phthalate	ND	10.0	"							
Dibenz (a,h) anthracene	ND	10.0	"							
Dibenzofuran	ND	10.0	"							
Diethyl phthalate	ND	10.0	"							
Dimethyl phthalate	ND	10.0	"							
Fluoranthene	ND	10.0	"							
Fluorene	ND	10.0	"							
Hexachlorobenzene	ND	10.0	"							
Hexachlorobutadiene	ND	10.0	"							
Hexachlorocyclopentadiene	ND	10.0	"							
Hexachloroethane	ND	10.0	"							
Indeno (1,2,3-cd) pyrene	ND	10.0	"							
Isophorone	ND	10.0	"							
N-Nitrosodi-n-propylamine	ND	10.0	"							
N-Nitrosodiphenylamine	ND	10.0	"							
Naphthalene	ND	10.0	"							
Nitrobenzene	ND	10.0	"							
Pentachlorophenol	ND	10.0	"							
Phenanthrene	ND	10.0	"							
Phenol	ND	10.0	"							
Pyrene	ND	10.0	"							
Surrogate: 2-FP	*14.8*		"	*50.0*		*29.6*	*27-124*			
Surrogate: Phenol-d6	*27.4*		"	*50.0*		*54.8*	*12-124*			

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3E01001: Prepared 05/01/03 Using EPA 3520C										
Blank (3E01001-BLK1)										
Surrogate: 2,4,6-TBP	*19.9*		*ug/l*	*50.0*		*39.8*	*33-143*			
Surrogate: Nitrobenzene-d5	*42.2*		*"*	*50.0*		*84.4*	*35-119*			
Surrogate: p-Terphenyl-d14	*48.8*		*"*	*50.0*		*97.6*	*10-131*			
Surrogate: 2-FBP	*43.0*		*"*	*50.0*		*86.0*	*44-124*			
Blank (3E01001-BLK2)										
1,2,4-Trichlorobenzene	ND	50.0	ug/l							
1,2-Dichlorobenzene	ND	50.0	"							
1,3-Dichlorobenzene	ND	50.0	"							
1,4-Dichlorobenzene	ND	50.0	"							
2,4,5-Trichlorophenol	ND	50.0	"							
2,4,6-Trichlorophenol	ND	50.0	"							
2,4-Dichlorophenol	ND	50.0	"							
2,4-Dimethylphenol	ND	50.0	"							
2,4-Dinitrophenol	ND	100	"							
2,4-Dinitrotoluene	ND	50.0	"							
2,6-Dinitrotoluene	ND	50.0	"							
2-Chloronaphthalene	ND	50.0	"							
2-Chlorophenol	ND	50.0	"							
2-Methylnaphthalene	ND	50.0	"							
2-Methylphenol	ND	50.0	"							
2-Nitroaniline	ND	50.0	"							
2-Nitrophenol	ND	50.0	"							
3 & 4-Methylphenol	ND	50.0	"							
3,3'-Dichlorobenzidine	ND	50.0	"							
3-Nitroaniline	ND	50.0	"							
4,6-Dinitro-2-methylphenol	ND	50.0	"							
4-Bromophenyl phenyl ether	ND	50.0	"							
4-Chloro-3-methylphenol	ND	50.0	"							
4-Chloroaniline	ND	50.0	"							
4-Chlorophenyl phenyl ether	ND	50.0	"							
4-Nitroaniline	ND	50.0	"							
4-Nitrophenol	ND	50.0	"							
Acenaphthene	ND	50.0	"							
Acenaphthylene	ND	50.0	"							

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3E01001: Prepared 05/01/03 Using EPA 3520C										
Blank (3E01001-BLK2)										
Aniline	ND	50.0	ug/l							
Anthracene	ND	50.0	"							
Benzo (a) anthracene	ND	50.0	"							
Benzo (a) pyrene	ND	50.0	"							
Benzo (b) fluoranthene	ND	50.0	"							
Benzo (ghi) perylene	ND	50.0	"							
Benzo (k) fluoranthene	ND	50.0	"							
Benzoic Acid	ND	100	"							
Benzyl alcohol	ND	50.0	"							
Bis(2-chloroethoxy)methane	ND	50.0	"							
Bis(2-chloroethyl)ether	ND	50.0	"							
Bis(2-chloroisopropyl)ether	ND	50.0	"							
Bis(2-ethylhexyl)phthalate	ND	250	"							
Butyl benzyl phthalate	ND	50.0	"							
Carbazole	ND	50.0	"							
Chrysene	ND	50.0	"							
Di-n-butyl phthalate	ND	50.0	"							
Di-n-octyl phthalate	ND	50.0	"							
Dibenz (a,h) anthracene	ND	50.0	"							
Dibenzofuran	ND	50.0	"							
Diethyl phthalate	ND	50.0	"							
Dimethyl phthalate	ND	50.0	"							
Fluoranthene	ND	50.0	"							
Fluorene	ND	50.0	"							
Hexachlorobenzene	ND	50.0	"							
Hexachlorobutadiene	ND	50.0	"							
Hexachlorocyclopentadiene	ND	50.0	"							
Hexachloroethane	ND	50.0	"							
Indeno (1,2,3-cd) pyrene	ND	50.0	"							
Isophorone	ND	50.0	"							
N-Nitrosodi-n-propylamine	ND	50.0	"							
N-Nitrosodiphenylamine	ND	50.0	"							
Naphthalene	ND	50.0	"							
Nitrobenzene	ND	50.0	"							
Pentachlorophenol	ND	50.0	"							

North Creek Analytical - Bothell

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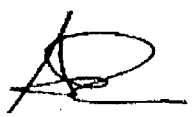

Amar Gill, Project Manager

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Ricke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3E01001: Prepared 05/01/03 Using EPA 3520C										
Blank (3E01001-BLK2)										
Phenanthrene	ND	50.0	ug/l							
Phenol	ND	50.0	"							
Pyrene	ND	50.0	"							
Surrogate: 2-FP	*134*		"	*250*		*53.6*	*27-124*			
Surrogate: Phenol-d6	*197*		"	*250*		*78.8*	*12-124*			
Surrogate: 2,4,6-TBP	*119*		"	*250*		*47.6*	*33-143*			
Surrogate: Nitrobenzene-d5	*212*		"	*250*		*84.8*	*35-119*			
Surrogate: p-Terphenyl-d14	*248*		"	*250*		*99.2*	*10-131*			
Surrogate: 2-FBP	*208*		"	*250*		*83.2*	*44-124*			
LCS (3E01001-BS1)										
1,2,4-Trichlorobenzene	73.8	10.0	ug/l	100		73.8	28-120			
1,4-Dichlorobenzene	76.3	10.0	"	100		76.3	33-120			
2,4-Dinitrotoluene	103	10.0	"	100		103	52-120			
2-Chlorophenol	54.6	10.0	"	100		54.6	38-120			
4-Chloro-3-methylphenol	80.1	10.0	"	100		80.1	37-120			
4-Nitrophenol	87.4	10.0	"	100		87.4	20-135			
Acenaphthene	88.0	10.0	"	100		88.0	45-130			
N-Nitrosodi-n-propylamine	86.8	10.0	"	100		86.8	40-120			
Pentachlorophenol	75.7	10.0	"	100		75.7	31-133			
Phenol	57.6	10.0	"	100		57.6	20-120			
Pyrene	90.7	10.0	"	100		90.7	38-123			
Surrogate: 2-FP	*19.3*		"	*50.0*		*38.6*	*27-124*			
Surrogate: Phenol-d6	*29.2*		"	*50.0*		*58.4*	*12-124*			
Surrogate: 2,4,6-TBP	*37.9*		"	*50.0*		*75.8*	*33-143*			
Surrogate: Nitrobenzene-d5	*39.7*		"	*50.0*		*79.4*	*35-119*			
Surrogate: p-Terphenyl-d14	*45.2*		"	*50.0*		*90.4*	*10-131*			
Surrogate: 2-FBP	*43.2*		"	*50.0*		*86.4*	*44-124*			

North Creek Analytical - Bothell

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3E01001: Prepared 05/01/03 Using EPA 3520C										
LCS Dup (3E01001-BSD1)										
1,2,4-Trichlorobenzene	88.0	10.0	ug/l	100		88.0	28-120	17.6	25	
1,4-Dichlorobenzene	81.1	10.0	"	100		81.1	33-120	6.10	26	
2,4-Dinitrotoluene	108	10.0	"	100		108	52-120	4.74	29	
2-Chlorophenol	80.4	10.0	"	100		80.4	38-120	38.2	61	
4-Chloro-3-methylphenol	101	10.0	"	100		101	37-120	23.1	49	
4-Nitrophenol	98.1	10.0	"	100		98.1	20-135	11.5	37	
Acenaphthene	93.5	10.0	"	100		93.5	45-130	6.06	49	
N-Nitrosodi-n-propylamine	98.5	10.0	"	100		98.5	40-120	12.6	36	
Pentachlorophenol	89.4	10.0	"	100		89.4	31-133	16.6	32	
Phenol	81.3	10.0	"	100		81.3	20-120	34.1	53	
Pyrene	102	10.0	"	100		102	38-123	11.7	50	
Surrogate: 2-FP	*32.2*		"	*50.0*		*64.4*	*27-124*			
Surrogate: Phenol-d6	*42.7*		"	*50.0*		*85.4*	*12-124*			
Surrogate: 2,4,6-TBP	*46.4*		"	*50.0*		*92.8*	*33-143*			
Surrogate: Nitrobenzene-d5	*45.0*		"	*50.0*		*90.0*	*35-119*			
Surrogate: p-Terphenyl-d14	*48.7*		"	*50.0*		*97.4*	*10-131*			
Surrogate: 2-FBP	*46.7*		"	*50.0*		*93.4*	*44-124*			

North Creek Analytical - Bothell

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Bridgewater Group	Project: Burgard	
4500 SW Kruse Way, Suite 110	Project Number: Not Provided	**Reported:**
Lake Oswego OR/USA, 97035	Project Manager: Ross Rieke	05/16/03 14:53

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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